Medical Times

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SEPTEMBER, 1930

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Vol. LVIII, No. 9 NEW YORK, SEPTEMBER, 1930 Twenty-Five Cents a Copy Two Dollars a Year

Ivy Poisoning*

ROBERT T. MORRIS, M.D., F.A.C.S.
New York

At this time in the holiday season of summer, lovers wander out by moonlight and seat themselves in a bower of poison ivy for an hour of Browning quotations. Farmers throughout the land, uncomfortable in their financial status, are being made so much more uncomfortable by ivy poison that they cannot read the Georgics at eventide. Workers in lacquer artistry in the Orient suffer from a similar poisoning, and by the irony of fate those of most artistic temperament seem to be most sensitive to the poison like hay fever sufferers who claim clannish intellectuality and perhaps on a basis in fact. The more civilized a people the more acute their reaction to external influences. In our mountain regions construction gangs of a thousand men may have interest in their work diverted seriously by plants of the Rhus family. I have used the term "Ivy Poisoning" because that is the one most familiar to people here in the East. In order to speak more accurately I should speak of "Rhus" poisoning, because it is in the Rhus family that poisonous plants to which I refer belong. They go by many local names—poison oak, poison sumac, mercury, picry and thunderweed in common parlance.

Why should one individual be poisoned and another one not poisoned, when both are exposed in the same way? We are in all probability dealing with a question of what is called sensitization. Many people are familiar with that sort of thing in connection with ragweed pollen, for example. One member of a family may have hay fever from ragweed sensitization and another member of the same family may not suffer any such effect.

The subject of sensitization is one that is very large and technical. Consequently I will say briefly that two factors appear to be important. One is a peculiar constitution which permits an individual to become sensitive to a poison; the other factor is peculiarity in method of exposure. Although the behavior of ivy poisoning suggests sensitization the way in which this occurs has yet to be discovered.

We have found out all about pollen of ragweed and of many other plants that cause troublesome seasonal fevers, but the pollen of plants of the Rhus family is heavy or sticky and not carried around freely by the wind. It does not contain the poisonous element. Consequently we shall have to look for some other way in which the poisonous principle in Rhus plants known as "toxicodendrol" might manage to sensitize individuals and make them ready to respond violently upon later contact with the plants. One way in which this might possibly occur would be by the medium of milk. Cows, like many other herbivorous animals, are very fond of the leaves of poison ivy. Some trifling amount of extract from the leaves of Rhus plants, like the flavor of garlic leaves occurring in milk, would almost certainly be taken into the system by almost everybody at one time or another in temperate parts of the world. An individual sensitized by some such route when coming in contact with certain plants of the Rhus family might then at a later date make violent response to a trifling amount of the poison. It affects not only the skin but the kidneys also. The kidney injury is insidious because it is not accompanied by pain. The poison ivy plant is a valuable addition to our flora. It drapes old walls, fences and shrubbery with a grace belonging to no other American vine excepting perhaps the Virginia creeper. In the autumn it pours liquid gold over the landscape

* Broadcasted from WEAF, New York, August 11th, under the auspices of The Gorgas Memorial Institute and The American College of Surgeons.

at a time when Virginia creeper is setting the countryside aflame with its reds.

Poison ivy serves as a favorite food plant for cattle, horses, deer and sheep in summer pastures during times of drought. When snow comes its berries offer welcome provender for winter birds despite the drifts and whistling winds that make life far from easy for them when other food is buried beneath the snow. Bees make nice clear honey from flowers of the plant. Its white milky juice may be made into an exquisite lacquer although like a famous Oriental lacquer derived from plants of the same family it must be handled cautiously. Its leaves are used for stimulant and narcotic effect in medicine and for tanning very delicate leathers. A poison ivy week has been proposed by thoughtless folks who would destroy the plant. I protest against any such vandalism. It would be like destruction of roses by people who do not know how to avoid their thorns.

Activity going with a poison ivy week could not possibly be very effective so perhaps we need not worry about it. The plant and its congeners grow upon millions of acres of land from Mexico to Canada and around the world in fact. Any denuded area would be quickly reseeded through the agency of birds which are fond of the berries. That is why it is so abundant along fences where birds rest. A poison ivy week would simply be devoted to silly temporary removal of a charming element of grace and beauty from parks and waysides where this plant is greatly needed for correction of the effect made by hot dog stands, bill boards and gasoline stations. Should we dispose of roses because folks learn painfully that they carry thorns? Excepting for their beauty roses have restricted values when compared with Rhus plants which in themselves are beautiful also. In a few situations where poison ivy really should be eradicated calcium chlorate dusted upon the leaves that are wet with dew or rain will attend to the matter in about 48 hours.

A poison ivy week would have better justification if there were no alternative for laying ruthless hands upon a decorative and useful plant which merely insists that people give to its three leaflets the sort of observation that is bestowed upon blackberry briers. If we are to abolish any one kind of plant let us begin with the opium plant, the "poison" of which does more damage than is done by all members of the Rhus family combined. There are two alternatives for the destruction of the plant. First: Take the trouble to learn to see it as quickly as we see blackberry briers—and keep away. If little children in the country already do that their seniors may do almost as well. Next: employ at the outset of poisoning some of the remedies that are perfectly efficient when used in the right way.

A southern mountaineer was asked one day about the best cure for snake bite.

He replied, "Whiskey is the only thing that's any good but that ain't no good unless you use it in the right way. The right way is allers to have it in you when you are bit."

The right way to manage a poison ivy remedy is to have it handy in the house or first aid kit when one is first poisoned. Some of the remedies are good to have always right at hand in the house anyway because they are valuable for so many other troubles of the everyday sort. Furthermore the speedy curing of repeated ivy poisoning seems to have a natural tendency to finally make some people immune to the poisoning, according to principles of what we call desensitization.

James B. McNair, of the Field Museum of Chicago, in his book on the subject of "Rhus Dermatitis," lists something like 270 remedies for this one disease. He discovered that astringent iron salts neutralized the poison leaving a precipitate which is not in itself poisonous. I am sure that by adding up notes from other sources the list could be carried to 300. What does it mean when there are 300 remedies for one disease? It means that if any ten of them were wholly satisfactory the other 290 would naturally be discarded. When Heywood Broun recently asked over the radio for poison ivy remedies for his son I wrote that he would receive advice concerning 250 remedies. In reply to my later question he said that about 200 remedies were suggested to him. Why then the innumerable remedies and general skepticism regarding remedies on a subject that has engaged some of the best minds of the medical profession in many countries of the world since away back in medical history. The answer is this. A remedy that may be useful in one stage of the disease may be actually harmful in another stage of the disease, with four separate and distinct stages to be considered. In the first stage there is a more or less severe itching and burning sensation of the skin. Then, the formation of tiny or large vesicles accompanied by swelling. Next, rupture of vesicles by rubbing and the appearance of a moist exudate. Lastly, a leathery condition of the skin, sometimes persistent for weeks, called "chronic dermatitis" in doctors' parlance. In the first stage of the disease it is probable that more than fifteen remedies may be promptly curative, but this stage may not last for more than an hour or two with some people—with other individuals it may last for several days and never go to the second stage at all. In the second stage when poison is buried in the swollen skin I do not know of more than three or four agents that will penetrate the tissues and get at it. This is unfortunately the stage in which treatment is usually begun. The irritation may be greatly increased by applications that would be really curative in the first stage. The third stage introduces a wholly new chapter. Microbes enter the skin where vesicles have become ruptured. If the treatment is not antiseptic in its nature great harm may be done by applications that would be curative during the first or second stages. In the fourth stage itching and burning sensation is so much like that of other stages that remedies which increase the irritation may be applied for a month—three weeks after the poison has all gone. Some authorities hold that the poison is destroyed in less than a week by ordinary body physiology of defense. After that the treatment is to be for dermatitis and not for poison.

Briefly, the treatment of ivy poisoning is no more a simple matter than is treatment of a common cold—mostly a failure as we all know very well—although almost everybody has a remedy for both conditions. Sometimes the remedy is jotted down by somebody who has read of a good cure and who quotes it for some friend who is suffering. Sometimes a doctor's prescription that has proven to be excellent for one patient in one stage of the disease is passed along to other patients who would not respond to that prescription in any stage and who apply it at the wrong time anyway. At this point it may be well to remark that the subject does not belong to my field of practice in medicine—I do not accept cases of ivy poisoning for treatment.

Death from ivy poisoning is seldom recorded. There is an occasional suicide from depression after a week without sleep. Sometimes a child has died in convulsions from the pain. There have possibly been other deaths that were not ascribed to the ivy poisoning at all for the reason that kidney involvement is without pain. The insidious complication may at times have late re-

(Concluded on page 261)

Case Report

SWITHIN CHANDLER, M.D.
Philadelphia, Pa.

The following data are reported without comment. The lesson and the conclusions I leave to the readers. The history of the condition is as follows:

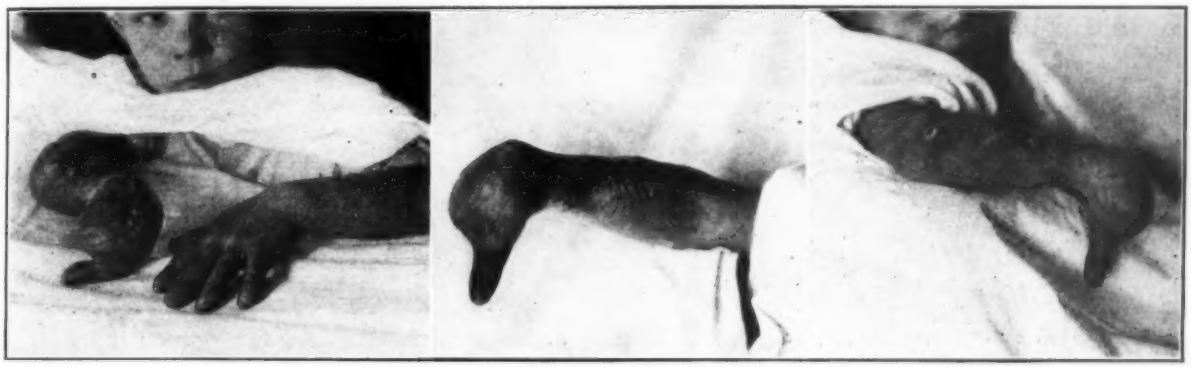
J. C., Jr., age 6 was referred to me for examination, report and suggestions, and the following facts were elicited:

FAMILY HISTORY—Negative.

PERSONAL HISTORY—Negative as far as present condition is concerned and favorable as to any wound healing if produced.

PRESENT ILLNESS—Began April, 1928, when he was run over by a heavy vehicle. Was taken to a hospital in a neighboring state where the accident occurred. He remained in hospital two months. The reported injury was to the right forearm, which was mangled, and included the hand which received the greatest injury. All the fingers were reported crushed and injured to such an extent that what was left of them was removed, the thumb only remaining. The skin and underlying tissues were destroyed. Multiple skin grafts were required to take the place of the destroyed surface.

PRESENT COMPLAINTS—Inability to use right hand because what is left is sore and not sufficient to enable him to perform the ordinary functions of the hand. In other words, loss of action due to soreness and removal of parts. The skin graft has healed but there are large scabs remaining on the forearm and several smaller ones on the hand. The appearance of this boy's hand is like the head of a goose and adding to the realistic appearance of the same, there is a scab about the location that the eye would be in a goose's head. The round ball like appearance of the fist being the head and the eye as just mentioned above due to the scab. The extension of the thumb from this round ball like mass represents the bill of the goose. It is to be noted that a similar scab produces a like condition on the opposite side as indicated in the picture. The fourth and fifth metacarpal bones of the hand are intact, but the second and third are almost destroyed, only a small portion of these bones remaining. The tendons in the back of the wrist are so injured that they are incapable of performing their functions, while the tendons in the front part of the wrist have pulled up what is left of the hand toward the wrist, and because the tendons are bound down with adhesions a continual contraction is made drawing the stump on to the wrist (palmer side). The only use he has of this hand is an extremely limited one gained by pushing the thumb toward the stump of the hand. The scars and contractions are readily seen in the photographs.



Showing Hands and Arms. Showing Left Side of Right Hand and Arm. Showing Right Side of Right Hand and Arm.

Central Medical Building,
18th and Chestnut Streets.

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sults in so-called Bright's disease that is not attributed to the real original cause. We do not know much about this as yet because the literature of kidney injury from Rhus poison relates chiefly to experimental work with animals in the laboratory. Kidney injury is to be watched for after a somewhat popular method of treatment said to have come to us from the Indians. This consists in the chewing of a leaf of a Rhus plant from time to time in the idea of bringing about an acquired immunity to the poison. It does not irritate the mucous membrane of the mouth. In this connection the newly praised treatment with hypodermatic injections of extract from the leaves should rarely be attempted by laymen. Such a method must be in the hands of physicians who know that toxicodendrol affects epithelium of the kidneys as it does epithelium of the skin. Doctors can make follow-up examination in the laboratory after each injection and know if danger is or is not imminent in any given case. The kidney question would relate also to tinctures of extract of the leaves that are taken internally. My message, then, is chiefly a warning. When people cheerfully say that they know a cure—Look out! Drug houses that manufacture poison ivy cures ought to publish their formulas so that we may know for which stage or stages of the disease any one prescription is applicable. Even so good and simple a remedy as washing with alkaline soap may spread the poison badly and send a patient to bed if it is not properly applied during the first stage. In the second stage a soap would irritate and be nearly useless anyway. In the third stage dependence upon that simple resource would be dangerous because soap is not antiseptic. In the fourth stage it would dry a skin already too dry. Most cases of ivy poisoning helped or harmed by treatment run their more or less natural course. Credit for cure is given to the last remedy that is employed—three hundred of these! Yet cures there really are for the disease in two of its stages.

114 East 54th Street.

Ulcerations of the Sigmoid

G. S. FOSTER, M.D.
SURGEON TO LUCY HASTINGS HOSPITAL
Manchester, New Hampshire

Recently there has come to the Clinic two cases of multiple ulcerations of the sigmoid flexure with perforations and a secondary peritonitis. In neither case was the correct diagnosis made preoperatively and both cases were admitted *in extremis*. Previous to these two cases our records do not show any admissions with this trouble. It is for this reason that we are reporting these cases with the hope that the report may be of some assistance to others who may later on see cases with similar signs and symptoms.

Just what the underlying cause was in either of these cases could not be determined. The onset of the disease in each instance was very recent without any previous history of trouble with this part. The extreme condition demanding very early interference was an outstanding feature. The fact that multiple ulcerations of the sigmoid can exist for a greater or less length of time seems possible even without any signs or symptoms severe enough to cause the patient to seek professional care. However, it would seem quite probable that such a condition would not in itself come on as an acute entity without having behind it other pathological media as causative factors. Marked obstipation, chronic acidosis, the presence of a foreign body, typhoid fever, tuberculosis, dysentery, chronic extensive lower bowel phlebectasis, traumatism, ileus, malignancy or the like might be hypothetically advanced as possible causes for such a condition as a secondary factor.

Both of these cases cited had been well and strong up to the time of a very acute onset of the condition. There was no history of loss in weight or any previous ill feeling. In neither case had any bright, fresh blood been noted in the stools, nor was there any complaint of hemorrhoids as a previously existing pathological entity. Neither patient gave a family history containing cancer, diabetes, tuberculosis or Bright's disease. The fact was that both of these patients had enjoyed very good health over a period of years. In both instances the patients were daily occupied and attended to their duties as any healthy individual would.

With these facts in mind we make no apologies for failure to make a correct diagnosis preoperatively. However, in each case the trouble was definitely located in the lower left quadrant of the abdomen and in this part of the physical examination and clinical observation we were justified in two conclusions, that surgical interference was indicated and that a low, left rectus incision was the one to be chosen.

Because of the fact that our records over a period of years did not reveal any such cases we very naturally became extraordinarily interested in these cases. Such cases call for more than the ordinary study and to us the interesting thing was where to place our finger tips for the underlying cause. To date we have not been able to satisfy our own curiosity and interest. It is for this reason that we are reporting these two cases in detail hoping that someone in the profession may offer a tangible etiology.

Case Reports

Case No. 41228.

Mrs. G. Age: 52 years. Married. Occupation: House wife.

Family history: negative.

Past history: negative.

Present illness:

Four hours ago while getting ready to go out she had a sudden onset of severe pain in the lower abdomen. This pain was very sharp and seemed concentrated over the region of the bladder. Accompanying this pain was a severe cramp felt at the neck of the bladder. This produced the desire to pass urine frequently without any relief and the pain gradually grew worse and more severe. This attack of pain was accompanied by vomiting. There was nothing particular noticed in the vomitus. She was seen by her family physician at her home and immediately brought to the hospital. Upon admission the pain was very severe. There was no family history of T. B., cancer, diabetes or Bright's disease.

Upon admission a thorough physical examination was made but no definite diagnosis determined. A consultation was held and it was determined to give her relief with morphine and observe her for a few hours. During this interval it was decided to have the G. U. tract radiographed to show the possible presence of a stone in the ureter.

Physical Examination:

Temperature: 99.4, Pulse, 100, good. Respiration: 32. Well developed and nourished. General appearance of one extremely ill, suffering with acute pain. Anxious features. No evidence of sudden, recent loss in weight.

Teeth: irregular and caries.

Tongue: furred and moist.

Head: normal in size and shape. *Scalp:* good growth of hair, no eruptions. Hair, gray.

Face: good countenance, no eruptions.

Neck: normal in size, no tumefactions seen. No enlargement of the thyroid gland. No lymphatic nodules.

Eyes: brown. No discolorations, pupils equal, react to light and accommodation.

Ears: hearing normal, no deformity.

Nose: no obstructions in either naris.

Throat: mucous membranes smooth. Tonsils not enlarged.

Skin: moderately pigmented over various parts of body, especially over chest, back and hips. This does not disappear with pressure, not elevated.

No spinal curvature, paralysis or deformities noted.

Thorax: normal in shape and outline; respiratory excursion even.

Heart: no abnormal sounds, areas of dullness outlined as normal.

Lungs: clear and resonant. No dullness or râles detected.

Lymphatic system: no enlargements or tender areas noted.

Vascular system: no enlarged or tortuous veins seen. No enlarged superficial veins. Arteries seem normal in size without thickening of the walls.

Muscular system: seems well developed. No discolorations, good co-ordination.

Osseous system: no bowing or exostosis. No nodular areas found along shafts of various bones. No discolorations or deformities seen.

Nervous system: reflexes seem normal. Surface senses as pain, touch, pressure, and thermic normal.

Breasts: no nodules found, nipples normal, areola well pigmented.

Abdomen: markedly distended, very tympanitic. Ten-

derness and muscular rigidity over the left lower quadrant very pronounced on moderate digital pressure. Tenderness also leads to the right, the distention is even, apparently well distributed intra-abdominally. No masses felt. No suggestion of induration. No glands, œdema or ascites.

Hepatic lower border not felt.

Hepatic area of dullness not increased.

Spleen: not enlarged.

Neither kidney lower pole felt.

Stomach and transverse colon not dilated as outlined by percussion.

No evidence of hernia, hemorrhoids, fistula or varicose veins.

Vaginal examination: negative. Patient catheterized, two (2) ounces of urine obtained.

X-Ray Investigation:—revealed the kidneys normal in size, position and density. No shadows suggesting stone. Also revealed ureters and bladder negative to *x*-ray findings.

Laboratory Findings:—

Urine	*Blood*
Date: 12-8-28	Date: 12-8-28
How obt.: Cath.	Hemoglobin: 70%
Amount: 3iv	Color Index: 0.72
Color: Dk. amber	Coag. time: 5 min.
Appearance: Sl. cloudy	Erythr.: 4,910,000
Reaction: very acid	Leukocytes: 16,600
Spec. Grav.: 1,028	S. Lymphocytes: 15%
Albumin: 0	L. Mononuclears: 1%
Sugar: 0	Polynuclear: 82%
Acetone: sl. trace	Eosinophiles: 2%
Crystals: few uric acid.	Miscl. numerous platelets.
Amorphous: num. urates	
Epithelium: num. squam.	Hinton test: negative.
Cultures: O.R.Cul. negative	
1st Cul. negative.	
2nd O.R.Cul. negative	

Operation:—

Operation: Incision, release of adhesions, evacuation of pus cavity, and establishment of drainage.

Post-operative diagnosis: multiple, perforated ulcerations of the sigmoid with general peritonitis.

Pathological Findings: (Macroscopic) large, long loop of sigmoid in left lower pelvis. This section of the large bowel was perforated in several places. The mucosa showed several circular ulcerations with the base perforated.

Findings (Microscopic): Incision and drainage of abscess. The tissue consists of pieces of infiltrated fat, section shows granulation tissue in fat. All types of leucocytes, including lymphocytes and eosinophiles. All types of plasma cells; hemorrhage. No evidence of malignancy.

Case No. 5630.

Mr. P———. Age, 77 years. Widower, Occupation: farmer.

Family history: negative.

Past history: negative.

Present illness:—

Three weeks ago he began to have diarrhoea with bloody stools. This blood was bright red in color. This went along for the first two weeks without any pain or vomiting. During this time, however, he had no appetite and he remained in bed most of the time. One week ago he began to have sharp pains in the lower left quadrant and at times this pain would extend to the left side. During this week he had vomited occasionally and had been nauseated most of the time. Nothing special was noted in the vomitus. Three days previous to date of admission he had quite a hemorrhage from the rectum and numerous watery stools. At this time he called his family physician who advised him to go to the hospital but he refused. Twenty-four hours ago he had another severe hemorrhage from the rectum and severe pain in the lower left quadrant of the abdomen. His physician again urged him to go to the hospital and he consented. Upon admission to the hospital the patient was quite weak. A consultation was held and the case determined to be a surgical emergency. Immediate operation was recommended but refused and the patient was placed on expectant treatment.

Physical Examination:—

Temperature: 100, pulse: 120, good, respiration: 20, even and full. B.P.: S-100/D-60. Fairly well developed and nourished. General appearance of one in fairly good health. Appears as if he might have lost small amount of weight.

Teeth: false.

Tongue: coated, moist, furred.

Head: normal in size and shape.

Scalp: bald, evidently had been blond.

Face: good countenance, no eruptions.

Neck: normal in size, no tumefactions seen. No enlargement of the thyroid gland. No lymphatic nodules.

Eyes: blue, no discolorations, pupils equal, react to light and accommodation.

Ears: hearing normal, no deformity.

Nose: no obstructions in either naris.

Throat: mucous membranes smooth. Tonsils not enlarged.

Skin: some areas of pigmentation on chest and back, varying in size from a pin head to a pea, not elevated; do not disappear on pressure.

No spinal curvature, paralysis or deformities noted.

Sinuses: clear.

Thorax: normal in shape and outline, respiratory excursion even.

Heart: no abnormal sounds, areas of dullness outlined as normal.

Lungs: clear and resonant. No dullness or râles detected.

Lymphatic system: no enlargements or tender area found.

Vascular system: no enlarged or tortuous veins seen. No enlarged superficial veins. Arteries seem normal in size without thickening of the walls.

Muscular system: seems well developed. No discolorations, good coordination.

Osseous system: no bowing or exostosis. No nodular areas found along shafts of various bones. No discolorations or deformities seen.

Nervous system: reflexes seem normal, surface senses as pain, touch, pressure and thermic normal.

Abdomen: moderately tense, moderately thick, fairly well muscled wall. Tenderness and muscular rigidity over lower half, suggestion of induration both lower quadrants. Also over the pubic area. No definite mass outlined or felt. Tenderness very pronounced on moderately deep digital pressure.

Hepatic lower border: not felt.

Hepatic area of dullness: not increased.

Spleen: not enlarged.

Neither kidney lower pole felt.

Stomach and transverse colon not dilated as outlined by percussion.

No evidence of hernia, hemorrhoids, fistula or varicose veins.

Scrotum: left side three times larger than normal, regular in outline, soft, transmits light.

Rectal examination: one organized tab protruding from enlargement of anus on right side. Digital pres-

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Proceedings of the New York Electrotherapeutic Society

Academy of Medicine, Wednesday, April 2

Surgical Diathermy in Urology

CLYDE W. COLLINGS, M.D.
New York

Surgical diathermy may be described as an electrical current, of such high frequency oscillations that the body tissues are cut by certain types of electrodes. The oscillations of the cutting current are some 14 or 15 times faster per second than the fulgurating high frequency suggested by Beer.

History

Many cutting machines with various descriptive terms have been invented. Your society made a plea a few years ago for a standardized term that would imply cutting by electricity. Most surgeons agree that "Surgical Diathermy" fills the bill.

There are two types of machines used—the audion tube and the spark gap. For our purposes, we must have an apparatus that will cut as efficiently under water as in air. At the beginning of our work in 1923, at New York University and Bellevue Medical College, we used the audion tube set called the "Radio-therm". In our hands this machine would not cut well under water. We therefore discontinued its use for the spark gap machine, known as the "Electrotome". We have been pleased with the working of this latter type, during the past five years.

Various Uses of the Current

Ureter Orifice

There may be a congenital stenosis of the ureter orifice. At times a ureterocele results. During life, the tight ureter orifice is caused by infection or tumor. The end result of this condition, if untreated, is hydroureter and destruction of the kidney parenchyma. Previous to 7 years ago, it was customary to cut the ureter orifice with cystoscopic scissors or rongeur forceps. Important bleeding often followed. Some urologists preferred the fulgurating current to open up the strictured opening. When the slough separated, one or two weeks later, a secondary hemorrhage occurred. The bladder has been known to fill with blood clots after these various operations. If the bleeding could not be controlled by indwelling catheter, a suprapubic cystotomy has at times been necessary.

In 1922, I incised a ureter orifice with the cystoscopic scissors, to aid the passage of an impacted stone, through the tight ureter orifice. I was called to the patient's home that evening to control the brisk bleeding. I was fortunate in being able to free the bladder of blood clots, and stop further hemorrhage by an indwelling catheter.

The present day practice is to cut the ureter orifice through the cystoscope by surgical diathermy. The bleeding is almost nil, as the blood vessels are sealed as they are cut across. A typical case history may be recited. In March, 1929, J. M., aged 34, had a right ureteral colic due to a small impacted stone in the intramural portion of the ureter. All catheters failed to pass the obstruction. The tight orifice was incised—no bleeding. The calculus passed one week later.

Bladder Tumor

Clinically we recognize two general types of bladder tumor by cystoscopic examination. One type, projecting into the cavity of the bladder, known as the papilloma—the other, growing into the bladder wall, so called "infiltrating" tumor. The papillomas are mildly malignant, while the infiltrating type are highly malignant. The true papilloma has a narrow base, an elongated pedicle and is only slightly adherent to the bladder mucus membrane; the infiltrating carcinoma has a broad base, only slightly raised above the bladder mucus membrane —the depth of tumor penetration into the bladder wall can not be determined by the cystoscopic eye.

The papilloma is treated through the cystoscope by high frequency excision and coagulation. When accessible the tumor pedicle is cut across by a knife-like electrode and the base coagulated. If the pedicle can not be seen the main body of the tumor is coagulated. As the electrode comes in contact with the tumor a very violent bubbling occurs; many small bits of tissue seem to "pop off" the mass and float away. With the "Electrotome", most papillomas can be entirely destroyed in one or two sittings. With the old type high frequency it often took 4 or 5 cystoscopic fulgurations. The patient is cystoscoped every 3 to 6 months to check up on recurrences.

The infiltrating tumor is best treated by an open operation—a suprapubic cystotomy. When the tumor occupies the dome or accessible portion of the lateral walls, the new growth is widely excised by a cutting current electrode. The lymphatics and blood vessels are thereby sealed beyond the tumor mass, reducing the chance of recurrence to a minimum. If the tumor occupies the base of the bladder or the bladder neck, the carcinoma is destroyed through the open bladder by high frequency coagulation. Radium seeds, 1 to 2 mc. each, are implanted in the tumor base about 1 cm. apart. In this location the cancer is very difficult to exterminate. If the growth can be kept under control for several years, the result is considered very satisfactory. Total cystectomy with transplantation of the ureters into the sigmoid is a very formidable procedure, accompanied by a high operative mortality.

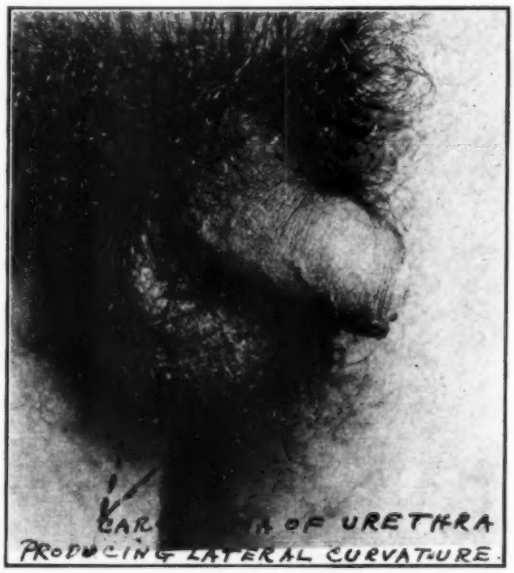
A patient of this group, Prof. R. M. A., aged 65, was seen in September, 1927, with a history of frequency, dysuria, and hematuria off and on for the past two years. Cystoscopy showed an infiltrating carcinoma, 2 cm. in diameter, in the dome of the bladder, just to the right of the air bubble. The bladder was opened and the tumor excised widely by the cutting current electrode. Five seeds of radium were implanted in the cut edges of the bladder wall. The convalescence was uneventful. The pathological report was squamous cell carcinoma, Broder's Grade III. The patient has been cystoscoped every 4 to 6 months since the operation and there is no recurrence. He is in good health, having no urinary symptoms two and one-half years after excision.

Carcinoma of the Urethra

Realizing the great danger in spreading the tumor cells when amputating the penis for carcinoma with the cold knife, we have substituted surgical diathermy for the past several years. Care is taken to go at least 2

cm. beyond the tumor mass. After the penis has been amputated, radium and deep X-ray therapy has been carried out at the Memorial Hospital.

The following is a brief report of a patient with carcinoma of the penile urethra. E. C., aged 50, came to us in June, 1928, complaining of pain in the perineum, frequency, great difficulty, and a bloody and pussy urethral discharge. The above symptoms started gradually 5 months ago. There was a marked lateral curvature of the penis. A very hard tumor mass surrounded the urethra from the region of the frenum to within 3 cm. of the peno-scrotal angle. A sound was obstructed near the fossa navicularis and a grating sensation (as if from calcareous material) was felt. A diagnosis of urethral carcinoma with calcareous incrustation was made. A small piece of tissue was broken off by the sound during the examination. The pathologist reported this to be papillary epithelioma. The penis was amputated near the peno-scrotal angle by surgical diathermy and the urethra transplanted into the perineum. In a report from Memorial Hospital in March, 1930, almost



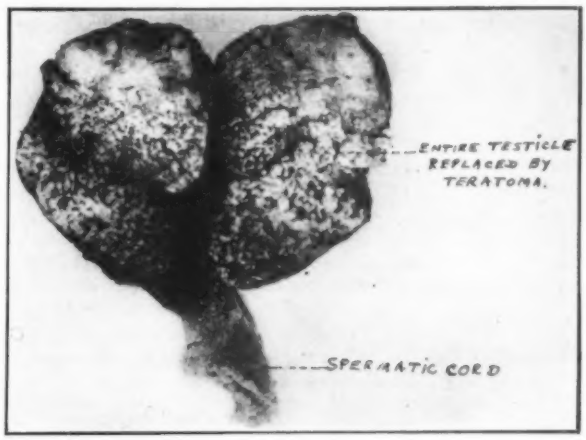
Carcinoma of Urethra Producing Lateral Curvature.

2 years after operation, the patient had no signs of a return of the tumor and is enjoying good health.

Teratoma of the Testicle

Malignant tumors of the testicle containing, as they do, all the three primary germ layers, are usually fatal within two years after the growth manifests itself. It is a disease of young adult life, rarely seen after the age of forty-five. Metastasis occurs along the lymphatics of the spermatic cord and up the spermatic vessels and retroperitoneal lymph nodes.

A typical case history of a patient with teratoma testis may be recited. F. W., aged 31, was seen in September, 1926. He complained of swelling of the right side of the scrotum—slightly painful at times. He stated that as long as he could remember the right testicle was larger than the left. During the past 2 years it had started to grow, the enlargement being more rapid during the past year. The patient was in good health having lost no weight or strength. There were no abdominal masses or tenderness. The inguinal lymph nodes felt normal. The spermatic cords did not feel thickened. The right side of the scrotum was 5 or 6 times usual size and was filled by a heavy, pear shaped, stony hard, mass. The testicle and epididymis could not be differentiated. A diagnosis of teratoma was made. The patient was operated upon at once, the right in-



Teratoma of the Testicle

guinal canal opened and the spermatic cord cut across near the internal ring by the cutting current. Doctor Ewing reported a typical malignant embryonal tumor of the testicle, commonly known as a teratoma. All the testicular tissue was replaced by tumor. The patient is in perfect health today (over 3½ years after operation and 5½ years after the testicle started to enlarge). Roentgenograms of the chest and repeated examinations of the abdomen have been negative for metastatic involvement.

The Prostatic Bar.

When the bladder neck is contracted by fibrous, scar tissue, this change may be termed fibrous obstruction. The tight bladder neck obstructs the free outflow of urine and residual urine often results.

Etiology

Most authors believe the cause of the fibrosis to be a chronic inflammation of the prostate gland, leaving scars when healing occurs. However, we see cases in infancy and youth without any previous prostatic infection.

History

Since the days of Bottini, urologists have concerned themselves with a transurethral operation for relieving the small fibrous obstruction.

The galvano-cautery of Bottini and Chetwood caused severe hemorrhage as the thick slough separated a week or two later. Incontinence of urine was another complication.

In his book Keyes states, "Young has given us a urethral punch wherewith to bite out pieces of the bladder neck, and continues to perform this operation undismayed by the profuse hemorrhage that often results. Many operators do a preliminary cystotomy, through which they can guide the bite of the punch, and drain the bladder afterwards, to take care of the hemorrhage."

Like Young, Caulk does his punch without the aid of the eye. This is a great disadvantage; as one of the older New York surgeons once said, "An ounce of *see* is worth a ton of *feel*." Bleeding has been another drawback.

Soon after Beer brought out the high frequency current, he fulgurated a median bar. Three weeks later the patient's bladder filled with blood clots. A suprapubic

cystotomy controlled the bleeding. A. R. Stevens, Bugbee and others have fulgurated the fibrous prostate. It requires a number of sittings and hemorrhage sometimes occurs.

Symptoms

The usual symptoms of a patient with benign enlargement of the prostate are present in the fibrous type; namely, frequency, burning, urgency, difficulty, at times complete retention, terminal hematuria, pain in the perineum, and across the back.

In a group of 25 patients in our office practice operated upon since January, 1929, symptoms of prostatism had been present from a few weeks to 22 years, the average duration six years. The youngest was 29, and the oldest 76, most all the patients bieng in the 4th, 5th, and 6th decade. Fourteen had had a Neisser infection in their youth.

The residual urine was recorded as 30 c.c. in 10 patients, 60 c.c. in 5, 90 c.c. to complete retention 6, 350 c.c. in 2, 450 c.c. in 1 (using the catheter once in 24 hours), and 495 c.c. in 1.

Diagnosis

The diagnosis of the fibrous prostate is made by rectal and cysto-urethroscopic examinations. By rectum, the prostate is usually described as small, somewhat irregular, and firm throughout.

As the cysto-urethroscope is passed through the bladder neck, depression of the ocular end is required to get over the fibrous bar. A distinct jump is felt as the instrument slips by the obstruction. There is a tilting of the trigone and a definite bas-fond. As the urethroscope is withdrawn into the posterior urethra, the floor of the bladder neck seems to rise like a curtain. Pushing the instrument back toward the bladder a "stone wall" is encountered, and the obstruction can only be passed if the ocular end is again depressed.

Lateral, median and intraurethral lateral lobes must be looked for and excluded before the following method of operation is employed.

Operation

Until a year ago, the electric excision of the prostatic bar was performed with a stiff knife-like electrode through the McCarthy panendoscope. Working upon certain suggestions, Reinhold Wappler modified the fore oblique lens system giving a larger field of vision. Our modification of the McCarthy instrument, for continuous irrigation during operation, has been placed along the telescope of the new instrument. A metal trough along the telescope steadies the electrode, further simplifying the operation.

The operation is preferably performed in a hospital under caudal anaesthesia (50 c.c. of 1 per cent novocain). At times gas or spinal is given.

The cysto-urethroscope is passed into the bladder. With the bladder partially distended, and the inflow and outflow of water regulated, the electrode is engaged upon the bar at 6 o'clock. The current is turned on and marked bubbling is noted. The protein molecules are exploded by the jostling of the high frequency oscillations. The urethroscope and electrode are slowly pulled back en masse until the veru montanum appears. A white furrow about 2 mm. deep is seen. The instrument, with the electrode in the furrow, is then pushed forward and through the bladder neck. Working back and forth in this manner the groove is gradually widened and deepened. Cut until you see the last obstructing fibrous band has been sawed into. One can, from the veru, look down a deep valley (perhaps 1.5 cm. deep) and see the base of the bladder. Persist in your efforts until you are satisfied the patient has a wide open bladder neck. If this is accomplished, the patient will be relieved. We were all timid at first, and cut too little. Do not be afraid of the rectum—it is still 1.5 cm. away (as determined on the cadaver).

By turning the knife blade sideways one engages the blade on the bladder neck at 5 o'clock. Cut downwards and backward until the intervening tissue is whittled away. This procedure is repeated at 7 o'clock.

The operation can be slowly and precisely performed in about 20 minutes.

There is only a minimal amount of heat penetration beyond the line of incision. By microscopic examination, we have found tissue destruction extends only 1 to 2 mm. beyond the cut.

After Care

Patients with a residuum of 200 c.c. or more before operation, have an indwelling catheter tied in the urethra for a day or two after the excision. As a rule, patients are able to void after removal of the catheter. Try not to pass a catheter postoperatively. It incites bleeding.

Hemorrhage at the time of operation has been unimportant. In about half the cases, blood-tinged urine and small clots are passed off and on for the first week or so. Rarely is it necessary to use an indwelling catheter for bleeding. I have never had to perform a suprapubic cystotomy to control hemorrhage.

Results of Operation

Of the 25 patients operated upon since January, 1929, all but three empty their bladders completely. They retain 10, 20 and 30 c.c. respectively. The 10 c.c. patient had 90 c.c. to complete retention before operation; the 20 c.c. patient had 450 c.c. and was catheterizing himself once daily; the 30 c.c. patient had 495 c.c. before operation.

The burning and frequency after operation usually lasts "off and on" for 3 to 6 weeks. A minority experience no burning whatever. Many patients will volunteer the information that the feeling of obstruction is gone—the urine passes freely.

Patients operated upon from 1923 to 1929 have remained well save three. One was a man 65 years of age who died one year after operation of acute cardiac failure; the second died one year after operation of a carcinoma of the prostate; the third patient had to be operated upon the second time because the first cut was not deep enough. The second operation relieved him entirely.

I have operated upon 2 patients with median and slight lateral lobe obstruction. They were elderly patients with diabetes and severe myocarditis, upon whom prostatectomy could not be performed. I gave them symptomatic relief. However, 6 other benign enlargement patients were operated upon as test cases of this method. They all required subsequent prostatectomy.

Within the past few months I have urethroscoped my first patient operated upon in 1923. The deep furrow in the bladder neck is apparently as wide open as the day of operation. He empties his bladder completely and is free from symptoms.

Summary

1. Surgical diathermy incises the ureter orifice bloodlessly.

2. Bladder tumors are quickly destroyed by coagulation; the pedicle may be cut across by the cutting current.

3. Carcinoma of the urethra and teratoma of the testicle may be excised by surgical diathermy. Chance of recurrence is reduced to a minimum.

4. Fibrous and scar tissue at the bladder neck may

be efficiently excised through the cysto-urethroscope. The resultant bleeding is unimportant.

983 Park Avenue.

Discussion

DR. A. T. OSGOOD: It gives me a great deal of pleasure to be present at this meeting and to discuss this question which is interesting the entire surgical world at the present time. It is particularly interesting that this form of surgical diathermy is now so widely used in these different features which have been presented tonight. I, of course, am particularly interested in urological conditions, and I think we may say that a tremendous advance has been made by the presentation of this method. All of us who have lived long enough have passed through periods of various forms of treatment of the vesical outlet obstructions which now seem particularly adaptable to this method. Years ago we were flabbergasted more or less by the lack of success in treating the obstruction of the prostatic bar. Surgical excision very often proved entirely unsatisfactory; recurrences were common; and while the older procedure is still followed, it is still accompanied with many difficulties. Excision by the actual cautery was long ago given up because of unfavorable results—the cautery burning too deep, the control was difficult, and the proper manipulation of the apparatus was very difficult through the wounds that were made to approach the parts.

Then came the early high frequency current presented to urology by Dr. Beer in 1910. This promised a great advance, but we have in this later method something very far superior. This is adaptable not only to the prostatic bar condition, but to other features as Dr. Collings has shown us tonight. He has been very wise in presenting to you facts which are important, namely, that this is a procedure to be used only in cases carefully selected by experts to differentiate between a hypertrophy of the prostate and a prostatic bar. This is no easy matter, for me, at least, and it is a question which every urologist has to take up with much care, knowing what he is about from the start. These cases are quite common, and Dr. Collings has shown that other conditions than this must be excluded before this procedure is carried out. This exclusion means a careful diagnosis in order not to bring disrepute upon the method and misfortune upon the patient.

Its great advantage is its simplicity; it requires skill and a certain amount of experience to use it; not all of us can do so. I have used the cutting current for many things and I presume I shall use this method as time goes on, more and more. It is a more speedy and rapid operation than fulguration; more satisfactory for the patient than any form of open operation. The operation through the cystoscope is a matter of only a short time, and the confinement to bed is very short.

One great advantage it that this knife-electrode disintegrates as it cuts through the tissue. It not only acts as a coagulant and stops bleeding but it cuts as well, and the accomplishment of these two things at one time is an advantage. The cutting with a punch to accomplish the same thing is quickly done, but it means a longer stay in the hospital and a longer convalescence usually, and is a more serious procedure, occasionally accompanied by serious bleeding.

Dr. Collings has reviewed a large number of conditions in which this form of cutting current is used, and in all it is a most satisfactory procedure. There might be something said upon each of the conditions that he has referred to, but I will not bother you further than to say again that I am very glad to be here tonight and to approve and applaud what Dr. Collings has been spending many years of hard labor to perfect—these instruments and this apparatus, the cutting tools and this cystoscope which he has so recently brought out.

DR. J. J. VALENTINE: I have often wondered what the real function of a discussor is supposed to be. He is doomed to either agree or disagree with the speaker; to act just as a trumpeter, so to speak; or to "break the ice" in order to stimulate those who perhaps have more knowledge on the subject than some of us chosen to discuss the paper. I can add only a few words to what Dr. Osgood has said.

It occurs to me that, from the urological point of view, when I first became interested in surgical diathermy seven or eight years ago, it was our routine custom to treat malignant bladder tumors by open operation and implant radium. The mother of one of my best friends was one of my victims. A year after the procedure just mentioned she had a recurrence, and it was then that Dr. George Wyeth and I talked over coagulation and excision of these tumors by high frequency currents. With his endotherm current, I did a secondary operation, completely excising the growth with the cutting current, and she recovered, that is to say, she has had seven years of normal life with a healthy bladder checked up by cystoscopy every six months. This result, naturally, would lend enthusiasm to any one who does not know the value of these currents.

Gradually we have fallen in with the pioneers and have followed the various techniques offered. Those of us who have been through the mill, more or less, as Dr. Osgood stated, have used every operation on the bladder neck, and have been successful and unsuccessful with all methods. As a matter of warning to those who still use the Young or the Geraghty punch, we know that serious hemorrhages may occur.

When Dr. Collings first began his work, he saw two or three of my patients and demonstrated his procedure and technique, which proved successful. He, fortunately, unlike some others, has not tried to accomplish too much. As Dr. Osgood stated, the cases must be carefully selected. The technique with modifications has been outlined to you, and I can only say that in the hands of those familiar with the various instruments, the procedure is safe and sane.

I might add one point: the cutting of a tuberculous ureter in nephrectomy, with the cutting current, is not out of order; it can be used in place of the scalpel which requires carbolizing of the stump. I have done it in a few cases.

Those who have failed in obtaining good results, I think perhaps were men who were not thoroughly familiar with the instrument used in diagnosing the condition. The straight tube urethroscope to my mind, is the proper instrument for diagnosis; not the cystoscope. With the McCarthy instrument or the Collings modification of it, the diagnosis is readily made. Where it is necessary to exaggerate the ordinary technique necessitating depression of the ocular end of the tube to enter the bladder, it should lead one to suspect bar obstruction. The distinct "click" or "jump", I believe, is characteristic.

The open operation for bladder neck obstruction has not been, and never will be, entirely discarded. There are some instances where it must be employed. Very recently (I quote this for Dr. Collings' benefit), I cut a bladder neck obstruction in a very inflamed bladder with staphylococcus and colon bacillus infection with the cutting current. The patient was relieved somewhat, but the suffering continued and became so great that in three days it was necessary to do a suprapubic drainage. The V-shaped cut was easily demonstrated at the bladder neck and one could see the extent of post-operative reaction. It was interesting to insert a sound and see it glide over the bar which previously could not be surmounted without considerable difficulty.

To those of you who have been concerned in the development of electricity in all its medical and surgical forms, we clinicians are indebted, and it is to you we owe our thanks for the progress made along this line. I wish to compliment Dr. Collings for his presentation to-night and also to compliment Dr. Hyams for the very interesting contribution he made. It was so well presented that I do not see how any one of us could fail to learn a great deal, considering the precise and accurate manner in which his subject was offered.

DR. ARCHIE DEAN: I will only speak of the two patients that Dr. Collings referred to me, the one with epithelioma of the urethra and the other with teratoma of the testicle. The first case is disposed of very easily, for the patient was cured by Dr. Collings. I really did nothing to help.

The advent of radiation therapy has radically altered the outlook of patients with teratoma of the testicle. Going over some of the older text-books on the subject—and some of them not so old—the ultimate mortality of the condition was about 85 per cent, despite the most skilful and radical surgery. In the Department of Urology at the Memorial Hospital we have had nearly 200 of these cases. When we made the last statistical study there were 124 cases. Of the patients who presented themselves in an operable condition, eighty-six per cent were living and well. These patients have continued to live free from symptoms for from three and a half to twelve years. There is nothing miraculous about this. The same embryonal characteristics that make the majority of these tumors grow so rapidly and metastasize so widely through both lymphatic and venous channels, render them especially radio-sensitive; so that well directed external radiation can make these tumors and their metastases diminish rapidly in size.

Regarding this specific case, I don't know how much our radiation did for the gentleman. I never was able to demonstrate either local recurrence or metastases. However, the tumor was of the kind usually characterized by wide-spread and early metastases. The patient was treated with external radiation and with high voltage roentgen rays. If you examine the skin on the abdomen, you will see it is marked with telangiectases, and the skin and subcutaneous tissues are indurated. The man had four erythema doses at as short intervals as I could give them, over the right abdomen anterior, right abdomen posterior and groin and scrotum. This patient has not been treated since 1928. Both Dr. Collings and I have examined him from time to time. I think the disease has been permanently controlled.

DR. COLLINGS, closing: I think Dr. Osgood hit the nail on the head when he remarked in the discussion: Be sure in your cysto-

scopic diagnosis that you are dealing with a median bar only and not with lateral or median lobe enlargement.

It is very important to look for intraurethral lateral lobes as the urethroscope is withdrawn into the posterior urethra. One may do an excision of a prostatic bar but if intraurethral lobes are also present, the operative result will be disappointing.

I have found that any palliative procedure on benign hypertrophy often results in bleeding several days after operation, while operations on the prostatic bar cause no important bleeding.

The great advantage of this operation is that it is done under direct vision, and the patient is out of the hospital in one or two days, as compared to the suprapubic excision which hospitalizes the patient for several weeks.

Replying to Dr. Bierman's question: A papilloma of the bladder is destroyed by coagulation transurethrally; in dealing with the infiltrating type of tumor, we do not waste time with high frequency coagulation but immediately excise it through the open operation.

Regarding Dr. Wyeth's remarks: I may say that we started our work at about the same time—he in his field of general surgery and I in the realm of urology. Mr. Reinhold Wappler has a record of who purchased the first machine and I have no wish to dispute priority.

I thank the officers and members of the society for the privilege of taking part in your program this evening.

Surgical Diathermy in Gynecology*

MORTIMER N. HYAMS, M.D., F.A.C.S.

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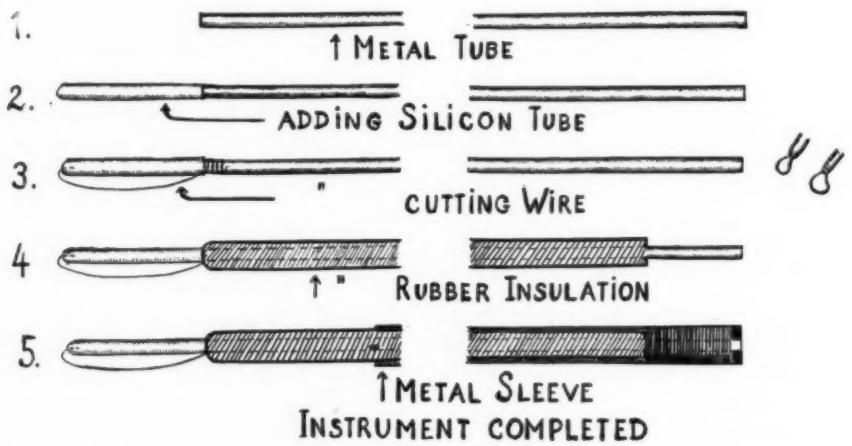
New York

Like every therapeutic innovation, diathermy has passed through a period during which its over-enthusiastic, but often misinformed, advocates caused many practitioners to doubt its efficacy. With more careful observation and earnest and persistent investigation, the possibilities are becoming more appreciated, while the indications and contra-indications for its use are better understood. Particularly is this true in its surgical application to gynecological disorders, the subject of this presentation.



Anatomically, the cervix is well adapted to treatment by this modality. Its favorable location and accessibility are such that treatment may be carried out under direct vision and the sequelae and end results closely followed.

Endocervicitis with its attendant symptoms is the most prevalent of all gynecological disorders and the one for which most women seek relief. It has called forth many diversified methods of treatment, varying from douches and local applications to complete amputation of the cervix. I do not intend to review the various methods of treatment advocated for this disease, but will stress the use of surgical diathermy to the exclusion of all other methods.

Treatment of any disease being predicated upon its pathology, it is necessary to understand what the conditions are normally, in order to appreciate the changes produced by disease. Without a clear understanding of the anatomy, histology, and physiology of the cervix, we cannot approach the subject of treatment scientifically or appreciate the relative value of each method when applied to this diseased structure.

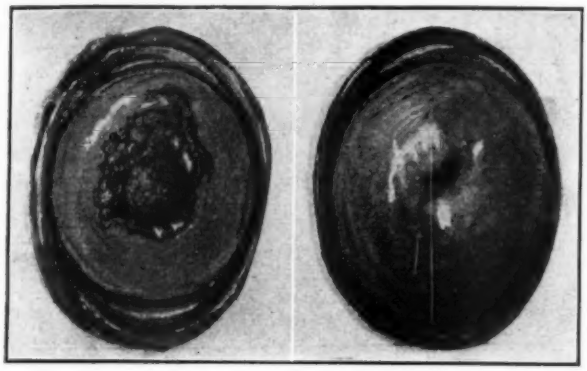
Briefly, the important anatomical phases of the cervix are: the cervical canal is about one inch long and spindle shaped; the lining mucous membrane, which is 1-2 mm. in thickness, has no submucosa. It is thrown into many folds and rugae, excellent hiding places for pathogenic organisms. Scattered throughout this mucous membrane are many simple tubular and racemose glands. The latter predominate, reaching to the basement membrane and often extending beyond this structure.

With infection the glands become involved and if the ducts become occluded, nabothian cysts result (Fig. 4). The brunt of the infection is borne by the lower portion of the cervical canal; the internal os and surrounding areas are rarely, if ever, involved. The mucous membrane of the cervix with its many folds increases materially the surface area of the canal. Primary infection of the cervix is generally of the ascending type. The cervix derives its blood supply from a branch of the uterine artery which arises at the isthmus and sends fine capillaries through the stroma of the cervix, far removed from the diseased mucous membrane.

Normally, in diseased conditions of the cervix, the eroded area becomes covered by stratified squamous epithelium arising from the margins of the erosion or from scattered islets still remaining beneath the columnar epithelium. This same squamous epithelium ex-

* From the service of Dr. Walter T. Dannreuther, Department of Gynecology, New York Post-Graduate Medical School and Hospital.

tends into the cervical canal, covering the affected area, and fills and blocks the glands, obliterating and destroying them. Therefore the natural healing process is the replacement of columnar epithelium by squamous epithelium, and the obliteration of infected glands by a plug of the same squamous type.



a. b.

Fig. 2. a. Appearance of the cervix before conization
b. Its normal aspect six months after conization.

When any of the various popular methods of treatment, short of complete endocervical removal, fails to cure or relieve, a radical tracheloplasty becomes the method of choice, because it is believed to completely remove the diseased mucosa with its deeply infected glands and is attended by a minimum amount of trauma and destruction of the underlying muscular fibres.

It can be admitted that the obvious method of treating diseased tissue is its removal in its entirety, assuming that such an excision is not detrimental to life or future vital function, and it logically follows that any such method of treatment becomes the ideal method to adopt in treating diseased tissue, whether in the cervix or elsewhere.

Conization is founded on a proper appreciation of the anatomy, histology, and physiology of the cervix. It has for its object the eradication and destruction of the diseased endocervical mucous membrane with its contained glandular structures, and this is accomplished with the preservation of the underlying muscle as well as the uninvolved tissues. Lymphatic drainage, so important for complete cure, is promoted. The relining of the cervical canal proceeds rapidly, and the cervix becomes covered by stratified squamous epithelium. (Figures 2, 3, 4 and 5.)

Local anesthesia only is necessary to insure a painless operation, making it an office procedure with no economic loss to the patient.

The instrument used in conization consists essentially of five parts as follows: (Figure 1.)

1. A metal tube ten or twelve inches long and one-eighth inch in diameter.

2. A silicon tube one and a half inches long, attached to the distal end of the metal tube.

3. A fine tungsten wire, attached at the metal-silicon junction, its other end fitted into the distal extremity of the silicon tube. This tungsten cutting wire is not straight but describes an arc with its widest portion one-eighth inch distant from the silicon tube. It thus conforms to the normal anatomical contour of the cervical canal which is fusiform or spindle shaped.

4. An insulating sheath of hard rubber encircles the metal tube to within one inch of its proximal extremity.

5. A metal sleeve covers the lower half of the insulated tube and makes electrical contact with the exposed portion of the metal tube.

To facilitate removal of tissue from angles, corners, or for biopsy, applicators with various shaped cutting wires have been made.

A spring jawed clamp, attached by a conducting wire to a high frequency machine and fastened on the arm or wrist of the operator, provides the necessary contact between the applicator and the source of current. It also insures perfect freedom of motion and the necessary manipulations are not interfered with by the usual connection of the conducting wire to the instrument itself.

The applicator can be connected directly to the source of current, or indirectly by means of the spring-jawed clamp.

The instrument is operated from a high frequency machine incorporating a special unit generating an electrical current of high wave frequency supplying unusual power to the cutting wire. This apparatus may be either of the gap or radio variety.

Technic

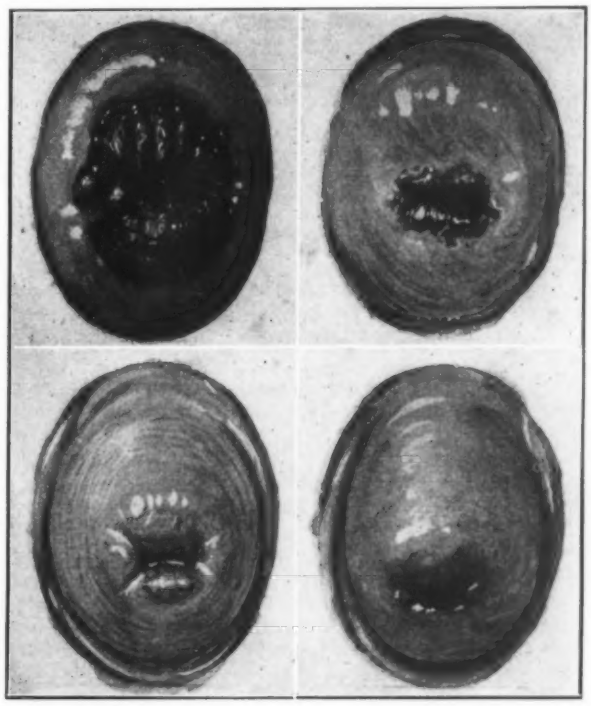
1. The patient is placed in the lithotomy position, with legs well separated, and draped in the usual manner.

2. The operator seats himself comfortably before the patient.

3. The Hyams illuminated vaginal speculum is inserted to expose the cervix.

4. The vagina and cervix are freed of all discharge by swabbing with hydrogen peroxide and wiped dry. It is important that the cervical canal be freed of all discharge.

a. b.



c. d.

Fig. 3. a. Showing a typical cervix before operation.
b. Its appearance one week after conization.
c. The marked improvement two weeks after conization.
d. The healed cervix four weeks later. This condition has remained unchanged up to the present time. Symptoms absent.

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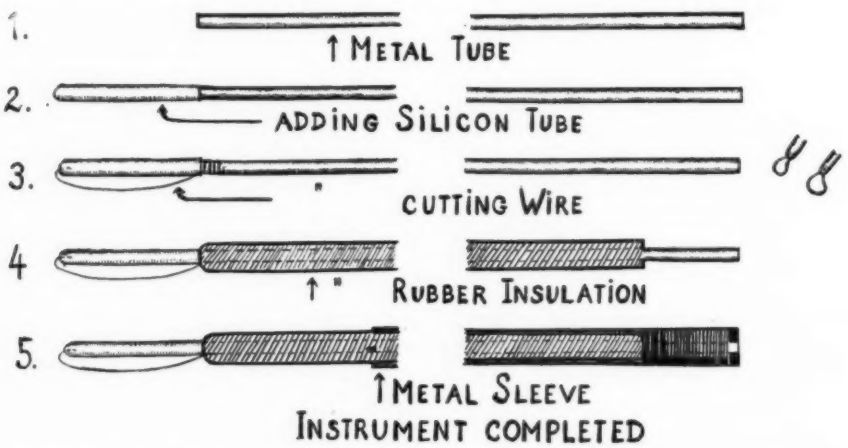

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Endocervicitis with its attendant symptoms is the most prevalent of all gynecological disorders and the one for which most women seek relief. It has called forth many diversified methods of treatment, varying from douches and local applications to complete amputation of the cervix. I do not intend to review the various methods of treatment advocated for this disease, but will stress the use of surgical diathermy to the exclusion of all other methods.

Treatment of any disease being predicated upon its pathology, it is necessary to understand what the conditions are normally, in order to appreciate the changes produced by disease. Without a clear understanding of the anatomy, histology, and physiology of the cervix, we cannot approach the subject of treatment scientifically or appreciate the relative value of each method when applied to this diseased structure.

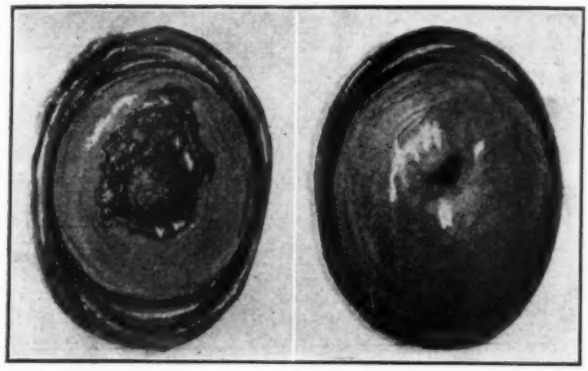
Briefly, the important anatomical phases of the cervix are: the cervical canal is about one inch long and spindle shaped; the lining mucous membrane, which is 1-2 mm. in thickness, has no submucosa. It is thrown into many folds and rugae, excellent hiding places for pathogenic organisms. Scattered throughout this mucous membrane are many simple tubular and racemose glands. The latter predominate, reaching to the basement membrane and often extending beyond this structure.

With infection the glands become involved and if the ducts become occluded, nabothian cysts result (Fig. 4). The brunt of the infection is borne by the lower portion of the cervical canal; the internal os and surrounding areas are rarely, if ever, involved. The mucous membrane of the cervix with its many folds increases materially the surface area of the canal. Primary infection of the cervix is generally of the ascending type. The cervix derives its blood supply from a branch of the uterine artery which arises at the isthmus and sends fine capillaries through the stroma of the cervix, far removed from the diseased mucous membrane.

Normally, in diseased conditions of the cervix, the eroded area becomes covered by stratified squamous epithelium arising from the margins of the erosion or from scattered islets still remaining beneath the columnar epithelium. This same squamous epithelium ex-

* From the service of Dr. Walter T. Dannreuther, Department of Gynecology, New York Post-Graduate Medical School and Hospital.

tends into the cervical canal, covering the affected area, and fills and blocks the glands, obliterating and destroying them. Therefore the natural healing process is the replacement of columnar epithelium by squamous epi-



a. b.

Fig. 2. a. Appearance of the cervix before conization
b. Its normal aspect six months after conization.

thelium, and the obliteration of infected glands by a plug of the same squamous type.

When any of the various popular methods of treatment, short of complete endocervical removal, fails to cure or relieve, a radical tracheloplasty becomes the method of choice, because it is believed to completely remove the diseased mucosa with its deeply infected glands and is attended by a minimum amount of trauma and destruction of the underlying muscular fibres.

It can be admitted that the obvious method of treating diseased tissue is its removal in its entirety, assuming that such an excision is not detrimental to life or future vital function, and it logically follows that any such method of treatment becomes the ideal method to adopt in treating diseased tissue, whether in the cervix or elsewhere.

Conization is founded on a proper appreciation of the anatomy, histology, and physiology of the cervix. It has for its object the eradication and destruction of the diseased endocervical mucous membrane with its contained glandular structures, and this is accomplished with the preservation of the underlying muscle as well as the uninvolved tissues. Lymphatic drainage, so important for complete cure, is promoted. The relining of the cervical canal proceeds rapidly, and the cervix becomes covered by stratified squamous epithelium. (Figures 2, 3, 4 and 5.)

Local anesthesia only is necessary to insure a painless operation, making it an office procedure with no economic loss to the patient.

The instrument used in conization consists essentially of five parts as follows: (Figure 1.)

1. A metal tube ten or twelve inches long and one-eighth inch in diameter.

2. A silicon tube one and a half inches long, attached to the distal end of the metal tube.

3. A fine tungsten wire, attached at the metal-silicon junction, its other end fitted into the distal extremity of the silicon tube. This tungsten cutting wire is not straight but describes an arc with its widest portion one-eighth inch distant from the silicon tube. It thus conforms to the normal anatomical contour of the cervical canal which is fusiform or spindle shaped.

4. An insulating sheath of hard rubber encircles the metal tube to within one inch of its proximal extremity.

5. A metal sleeve covers the lower half of the insulated tube and makes electrical contact with the exposed portion of the metal tube.

To facilitate removal of tissue from angles, corners, or for biopsy, applicators with various shaped cutting wires have been made.

A spring jawed clamp, attached by a conducting wire to a high frequency machine and fastened on the arm or wrist of the operator, provides the necessary contact between the applicator and the source of current. It also insures perfect freedom of motion and the necessary manipulations are not interfered with by the usual connection of the conducting wire to the instrument itself.

The applicator can be connected directly to the source of current, or indirectly by means of the spring-jawed clamp.

The instrument is operated from a high frequency machine incorporating a special unit generating an electrical current of high wave frequency supplying unusual power to the cutting wire. This apparatus may be either of the gap or radio variety.

Technic

1. The patient is placed in the lithotomy position, with legs well separated, and draped in the usual manner.

2. The operator seats himself comfortably before the patient.

3. The Hyams illuminated vaginal speculum is inserted to expose the cervix.

4. The vagina and cervix are freed of all discharge by swabbing with hydrogen peroxide and wiped dry. It is important that the cervical canal be freed of all discharge.

a. b.

c. d.

Fig. 3. a. Showing a typical cervix before operation.
b. Its appearance one week after conization.
c. The marked improvement two weeks after conization.
d. The healed cervix four weeks later. This condition has remained unchanged up to the present time. Symptoms absent.

5. A small crystal of cocaine is placed in the cervical canal and allowed to dissolve, or an applicator saturated with 85 per cent cocaine solution is introduced into the cervical canal for five minutes.

6. The inactive, wet metal electrode about six by six inches in size, connected to the high frequency machine through a conducting wire, is placed on the abdomen and held firmly in place by means of a strap or sand bag; the patient is directed to make firm compression with both hands, so as to distract her attention.

7. Having wet the skin with water, a spring jawed applicator is placed on the arm or wrist of the operator and connected to the other pole of the high frequency machine through a second conducting wire.

8. The length of the cervical canal is measured and the appropriate instrument selected.

9. The current is turned on until a stage is reached which will provide sufficient current for the operation.

10. The instrument is held firmly in the hand which has previously been wet with water, the fingers completely encircling the metal sleeve.

11. The other hand steadies the instrument and may be placed on either the insulated portion or on the metal sleeve.

12. The tip of the instrument is placed about one-eighth inch from the external os and the foot switch closed, thereby turning on the current. A burning or searing of the tissue should take place.

13. With the current still on, the silicon portion of the instrument is immediately passed into the cervical canal up to the internal os, and with a rotary motion the mucous membrane is coned out.

14. The foot switch is released and the instrument withdrawn. The mucous membrane with its contained cervical glands will be found adhering to the tungsten wire and the silicon tube, or may be removed with forceps, and a few drops of blood may appear in the cervical canal.

15. The instrument may be re-introduced and more tissue removed by repeating the previous steps if the operator so desires.

16. An applicator saturated with 2 per cent mercurochrome solution is now placed in the cervical canal and left in situ for several minutes.

17. A light packing of the vagina with gauze moistened with mercurochrome solution 1 per cent is all that is needed to control the slight amount of bleeding which might occur.

18. The patient is allowed to leave the table.

19. The entire operation should not take more than a few minutes.

About the fourth day a grayish slough will be found filling the cervical canal and may easily be removed with a dressing forceps. The cervix and vagina are swabbed with 1 per cent mercurochrome solution. On the seventh day the cervical canal will be found smaller in size, and granulation tissue can be seen. About the second and third week the cervix approximates its normal size with only several small unhealed areas visible.

Fig. 4. High power microscopic study of a section of the cervical canal removed from one of our patients, before conization, showing the round cell infiltration, and markedly dilated glandular structures.

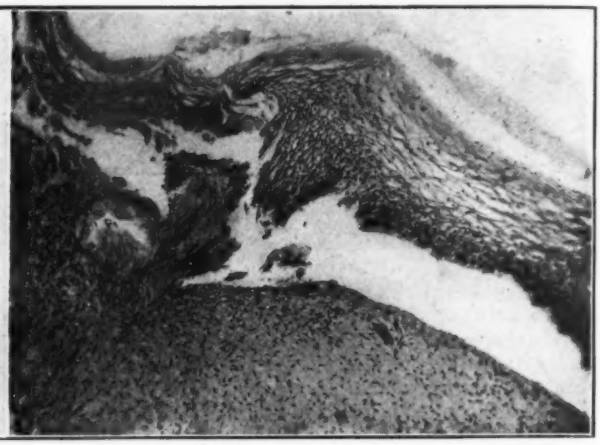


Fig. 5. Same patient as in Fig. 4, six months after conization. High power microscopic study of a section of the cervical canal showing proliferation of stratified squamous epithelium lining the cervical canal.

About the fourth week the eroded areas are completely covered by squamous stratified epithelium and the entire cervix presents a healthy appearance. Vaginal douches are neither advised nor necessary.

Advantages

1. The method is used for the treatment of ambulatory patients.

2. The patient suffers no pain or discomfort.

3. The symptoms are relieved because the mucous membrane with its contained glands is removed, thus aiding Nature in repair and at the same time expediting the healing process.

4. The danger of subsequent bleeding is practically nil.

5. No muscular tissue is removed, the cervix remaining functionally normal, and future parturition is not interfered with mechanically.

6. The technic, easily acquired, can be carried out by the clinician.

7. The cervix need not be drawn down to the vaginal introitus, thus avoiding the possibility of subsequent retrodisplacement of the uterus.

8. The cutting proceeds smoothly, the generated heat assuring asepsis.

9. Tissue can be removed to any desired depth.

10. Conization can be used for removing tissue for microscopic examination, particularly in cases where dilatation and trauma are inadvisable.

11. The procedure may be repeated as often as is deemed advisable to accomplish its object.

12. Removal of the diseased tissue promotes and facilitates lymphatic drainage.

13. Conization results in a minimum of scar tissue because the division of the tissue is accomplished far more accurately than with the finest knife.

Conization is not recommended as a cure-all for any type of gynecological disorder. To insure success all pathology extraneous to the cervix must be carefully looked for and treated. Symptoms due to causes other than endocervicitis must be traced to their site of origin, for example, a discharge resulting from uterine displacement must have its own specific treatment.

Condylomata of the vulva, cervical polypi, pedunculated tumors and urethral caruncles lend themselves very well to treatment by surgical diathermy. The base of the tumor, where accessible, is infiltrated with one half or one per cent novocain solution, and by using either the instruments previously described, or a needle point electrode, the growth may be removed completely or destroyed by dessication or coagulation. This procedure may be carried out very satisfactorily in the physician's office.

In conclusion, surgical diathermy has a definite place in the armamentarium of gynecologic therapy when applied for conditions where indicated, and is offered as an added link in the chain of progressive methods devised and in use for the relief of gynecologic diseases.

Discussion

DR. A. M. HELLMAN: The part I would like to say a few words about is the paper so interestingly presented by Dr. Hyams. I first learned of this method of treatment through the courtesy of Dr. Hyams. I went to the Post-Graduate Hospital and Dispensary and saw him do some cases when he was first making his drawings; and afterward he came to my office and treated a case there, and since then I have treated quite a number of cases with remarkable and brilliant results. We all know very well that the cure of fluor albus dates from the 17th century, and we know they have been curing it ever since, and I suppose there will still be new cures; but this method certainly is a cure for those cases where the cervix is basically at fault. Any operative procedure that will necessarily eradicate the glands of the cervix would cure these cases of leucorrhoea where the case is entirely surgical, and it is in a large percentage of cases that this method is a very safe and sane procedure.

It is easily carried out in the office; you need no assistant beyond a nurse. It requires very little time, and the patient is not invalided in any respect. I use the technique described by Dr. Hyams as nearly as I am able; I add only one little thing to it. There is a little smoke sometimes, and I have added a small rubber tube to a ⅛ h.p. motor and that keeps blowing the smoke away and has proved very convenient. I pack all of these cases; not that I expect them to bleed, but I feel that it makes the patient come back the next day, and it is a good thing to know what is going on. Then, I have them come back a week later, and then twice at two-week intervals; and they seem to be cured in four to six weeks, and all have very nearly perfect results in that time. Once in a while you may have to do a little something; but during that five or six weeks period I allow no treatment, no douche, no sexual relations, no handling of any kind. After that I tell them to return to normal existence; and if they desire douches, to go ahead with them. Invariably they become very grateful patients. They do not have to go to bed; they come in from Westchester or Long Island in their motors, and drive out, and come in again the next day.

Once in a while during the procedure they may have a little pain, but that is probably because the cocaine has not had its full effect. I have been injecting a little one per cent solution, and when that is done carefully they don't know I am working at all.

Dr. Hyams is to be congratulated on what I should like to call his discovery. He has not overdone it, but has made a complete picture of it, and it will be long before any one can add anything to this particular method that will be a worthwhile contribution.

DR. JULIUS JARCHO: I am sure we have all enjoyed Dr. Hyam's presentation. He has, as Dr. Hellman stated, given us a real contribution and has helped us a great deal in overcoming a very unpleasant condition. I have been using this method since he first presented it, but with certain modifications. I am still uneasy about treating the cervical canal exactly in the manner Dr. Hyams advises for fear of producing stenosis of the lumen.

Dr. Hyams described pathological changes completely and accurately. Since the wall of the cervical canal lacks a submucosa, the occluded and enlarged cystic glands penetrate deeply and sometimes actually reach the muscular layer. Thus, in a coring-out operation one is often surprised that after all apparent diseased tissue has been removed with a knife, suddenly another cyst is discovered deep in the wall. Therefore, in order that Dr. Hyams' method be effective the coagulation must be very deep and therefore I fear stenosis may take place. Therefore, in revolving the electrode inside the cervical canal I do not complete the circle; I prefer to traverse only two-thirds of the arc and thus hope to prevent stenosis of the cervical canal. As a further modification I plunge the live needle electrode into the nabothian cysts on the periphery of the cervix. I drive the needle parallel to the axis of the cervical canal. This may come in contact with many diseased glands that are inaccessible through the canal. In many severer cases, I prefer operative interference, as surgical diathermy may fail to remove the very deeply infected tissues. In some cases even operative enucleation is insufficient and nothing short of high amputation will cure the patient. The cervix of a young woman in the childbearing period must not be amputated, because whereas conception may be unimpaired, there is a likelihood of miscarriage at the fourth or fifth month. Therefore, in these young women severe infections should be treated palliatively by surgical diathermy.

In conclusion I want to say that Dr. Hyams has certainly done a good piece of work in introducing this method of treatment.

DR. W. BIERMAN: I would like to ask Dr. Hyams why he removed the slough in these cases. If I remember correctly, he said that three or four days after the operative procedure he removed the slough. We have not done that in other surgical diathermy procedures; I have found that it was well to let the tissues granulate under the slough, which would separate of itself after ten or twelve days.

DR. JOSEPH A. HYAMS: A discussion of the presentation on conization of the cervix by me would hardly be material, due not only to my lack of experience with the condition treated, but, owing to our close relationship, any statement by me might be considered prejudiced.

The treatment of bladder neck obstruction other than enlargement of the prostate which Dr. Collings presented so clearly this evening, has been most intriguing to the urologist for almost a century. The present day treatment of median bar can be said to have begun with the development of the punch by Young in 1909. This, however, like the Caulk modification as well as other instruments of a similar type, fell short in that they did not permit adequate visualization and control of bleeding. By Dr. Collings' method, both these factors are eliminated. A deep V-shaped trough is bloodlessly cut through the bar under vision and is attended, in the majority of instances, by less danger and better after results than the excision of the V-shaped segment by the suprapubic route.

I must emphasize the fact, however, that with the McCarthy visualized punch, not only are segments removed but bleeding is easily controlled by coagulation under vision with a diathermic electrode. Furthermore, the instrument has another advantage, namely, the excised tissue is not destroyed as in the method demonstrated this evening, but can be utilized for microscopic study.

With a view to a better understanding of the etiology and pathogenesis of median bar and coarctation of the vesical neck, Dr. Samuel E. Kramer and myself have utilized some of these excised specimens and have made a comparative microscopic study with 80 bladder necks from fresh cadavers, with pathology showing all extremes from acute infections to chronic vesical neck obstructions. The necropsy material was sectioned, some transversely and others longitudinally; through the trigone, vesical neck, posterior urethra, and prostate and seminal vesicles, and the pathology present in the punch specimens compared with that which was found to have taken place at the posterior vesical lip in the cadaver specimens.

We are particularly fortunate tonight in having these two papers. To a certain extent, the changes that are taking place in the cervix, which have been so graphically and well demonstrated, are duplicated in the vesical neck. To Alberran is credited a small group of submucosal glands located on the floor of the vesical neck, the subcervical glands. Our work has shown that an infection either ascending along the course of the urethra, or descending from the upper urinary tract, may not only invade these glands, but through the ejaculatory and prostatic ducts, infect the prostate and seminal vesicles, eventuating in a chronic inflammatory elevation of the posterior vesical lip, which we have arbitrarily termed the pre-fibrotic stage, and may terminate in the fibrous median bar. The latter is the fibrous type of obstruction which Dr. Collings has so wisely restricted to the use of his instrument, for such excision of the prefibrotic or inflammatory type of bar is usually followed by

symptoms which leave the patient in a far worse condition than before operation. Our findings would serve to substantiate the oft repeated statement of Dr. Collings that he reserves his technic for use in the fibrous type of median bar.

There is another phase of the subject which we believe to be of interest. In trying to increase the application of the procedure, urologists have used the punch and cutting current for the removal of spheroids of prostatic hypertrophy occurring in a posterior commisural group of prostatic glands. Our work has shown that concomitant spheroids are usually present in the lateral lobes of the prostate, the surgeon having at best merely delayed the inevitable enucleation of the prostate by the use of these methods.

Dr. Wm. Bierman: I would like to ask Dr. Collings about the electrocoagulation of bladder tumors. What has been his experience as to the value of attacking these growths through the cystoscope and through open operation suprapubically?

Dr. Hyams, Closing: I am very pleased that Dr. Hellman has had such good results with the use of my technic. In my office I likewise use a small pump to blow away the smoke as the tissue is cut through, but even without a pump, the smoke resulting from the procedure is not very annoying, although at times, it may fog the field. The entire operation takes less than a minute, so while the elimination of smoke by the use of a pump is advantageous, it is not absolutely essential.

Replying to Dr. Jarcho: The anatomy of the cervix was purposely demonstrated this evening so that we might understand the various conditions arising in the cervix from simple endocervicitis to complete cystic degeneration. That these glands extend deep into the cervical tissue is conceded, and the problem of how to remove these glands completely has always been a disputed question. Complete amputation of the cervix will remove the entire glandular structures, but this is undesirable during the child bearing period. With many nabothian cysts visible in the cervical tissue, they must be opened and destroyed after conization, and I have found that the actual cautery is far superior to the curet or coagulation. I am afraid that partial conization as suggested by him would not be satisfactory, as it would leave infected mucous membrane and glands to perpetuate the original symptoms. The use of conization as a palliative method to be followed later by operation, is of course, out of the question, for as we have shown by the slides this evening, one is able to remove as much tissue by conization as by operation, short of complete amputation. Unfortunately the Doctor did not state what operation he uses for permanent cure.

Replying to Dr. Weythe: Since 1928, we have been using 85 per cent cocaine solution on an applicator in the cervical canal for anesthesia. This procedure has been carried out in 250 to 300 cases, and at no time have I seen one in which there was the slightest reaction.

Dr. Bierman asked why I remove the slough: I said in my paper that you *may* remove the slough as it is very loose, and is very easily removed with dressing forceps. It is far better to leave the cervix alone, applying locally 1 per cent mercurochrome solution.

The treatment following conization consists of the application of mercurochrome 1 per cent to the vagina and cervix about once a week for a total of four or five weeks. A number of patients returned several months after conization having had no treatment for four or five weeks.

As to the coagulation method: we originally used coagulation for the treatment of endocervicitis and quickly discontinued its use due to the tendency to hemorrhage and the amount of scar tissue resulting from the operation. Conization produces a minimum of scar tissue, one of the advantages of the method. This must be considered in the application of any procedure, for trachelorrhaphy was devised for the removal of scar tissue, and today we should not use a method which will produce a condition for which an operation is advocated.

I wish to thank the officers and the members of this society for the way my paper has been received, and also to thank Mr. Reinhold Wappler for the time he has expended in working out the instrument.

Ulcerations of the Sigmoid

(*Concluded from page 263*)

sure reveals prostate normal in size, consistency and outline.

Knee jerks: absent.

Feet: both arches very flat, markedly pronated.

Proctoscopy reveals about ten inches inside the anus—a growth evidently bleeding, moderately firm, somewhat nodular, semi-fixed, evidently located in the upper rectum.

Laboratory findings:—

URINE			BLOOD
Date: 3-7-30	3-8-30	3-16-30	Date: 3-12-30
H. ob: voided	voided	voided	Hem.: 65%
Amt.: VL	VIII	VIII	C.T.: 6 min.
Color: d., amb.	amber	amber	Eryth.: 3,953,000
Ap.: cloudy	cloudy	cloudy	Leuk.: 20,100
Reac: acid	acid	acid.	Poik: present.
S. G.: 1,020	1,020	1,014	S. L.: 16%
Albu: s. trace	trace	lg. trace	L. L.: 4%
Sugar: 0	0	0	Poly.: 72%
Urea: 3.5 mg.			Myel.: 8%
Acet.: 0	0	0	Miscl: basket cells—2%
Sugar: 0	0	0	numerous platelets
Cryst.: o.u.a.	o.u.a.	few ur. ac.	
Amor.: 0	few	num.	Serum reaction: Hinton: negative
Casts: 0	0.g.c.	many g.c.	Urea: 14.01 mg.
Epith.: o.s.r.c.	few	—	Urea-nitrog. 29.81 Mg.
	s.r.c.		Blood sugar: 0.128 Mg.

3-15-30 Widal-negative.

O. R. culture 1st cul. neg.
2nd cul. neg
3rd cul. staph.

X-Ray Examination:—

X-ray findings indicate small new growth at junction of rectum with sigmoid and infiltration of wall of colon and mesial side at junction of caecum with ascending colon. No obstruction.

Operation:—Incision, establishment of drainage (local analgesia).

Post-operative diagnosis: Multiple, perforated ulcerations of the sigmoid with general peritonitis.

Pathological findings: bowel adhered to anterior abdominal wall and covered with organized lymph. Immediately upon opening the peritoneum, gas escaped and was seen bubbling. At first clean, and then, cloudy straw colored fluid was seen. Growth below knuckles of intestines apparently attached to abdominal wall. Suffused peritoneum and intestine. The sigmoid was covered with a thick layer of organized lymph. There were several perforations found in the wall of the sigmoid. These perforations were pin point and led to circular ulcerated areas on the mucosa. These ulcerated areas measured about a quarter of an inch in diameter.

Findings (Microscopic):

Pathological section showed interlacing fibrous tissue markedly infiltrated with round cells taking an alkaline stain. No mitotic figures were seen or any other evidence of malignancy.

These two cases illustrate a rather unique pathological condition. As shown by the pathological sections of the specimens taken from the sigmoid there was no evidence of malignancy. Each case showed multiple perforated ulcerations of the sigmoid with marked localized induration and fæcal leakage soiling the peritoneum and producing a localized peritonitis. The pathological sections of pieces of the indurated tissue and peritoneum did not reveal other than a rather acute inflammatory, round cell infiltration. No etiological factor could be determined in either case.

967 Elm Street.

Toxemias of Pregnancy

Modern practice has more and more favored conservative medical treatment during the acute stage of toxemias. This applies even to such grave conditions as severe eclampsia. If these measures fail, interruption of pregnancy may have to be resorted to.

Five to ten per cent glucose solution per rectum, administration of glucose intravenously, sedatives such as chloral hydrate and bromides per rectum, morphine subcutaneously, are our main reliances in the acidoses and other metabolic disturbances at the basis of these conditions. While conservatism is to be encouraged, a sufficient margin of safety must be allowed for, should interruption of pregnancy be indicated, as in the early vomiting of pregnancy, or in the kidney of pregnancy and in eclampsia. In the later months, it must be remembered that if the patient is allowed to deteriorate sufficiently, she will succumb during the evacuation of the uterus, be this brought about by rapid or slow means.—Robert T. Frank, M.D., in *Med. Jour. and Record*, July 2, 1930.

Proceedings of the Society of Medical Jurisprudence

Academy of Medicine

Medicolegal Uses of Filtered Ultraviolet or Black Light*

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Many objects shine in the dark. The eyes of the cat seem to do so. The dial of your wrist watch also shines in darkness. Neither of these examples actually depends on the type of filtered ultraviolet or black light which can be made to serve in medicolegal work. We depend upon sources of ultraviolet as the mercury vapor arc in glass or quartz which are actuated by currents of electricity. But ordinarily these sources give off visible light so that any reaction of fluorescence set up on objects placed before their rays is not visible to our eyes. It has occurred in nature that exposure to light has resulted in changes which are visible in the dark some time later. The story is told that a shoemaker of ancient times seeking the philosopher's stone on the mountains near his home came upon a shining rock at midnight, yet the light became extinguished with the coming of morning. We now recognize that the shoemaker had noted natural luminescence of the persisting character after the source of its activating energy had been removed. This phenomenon is known as phosphorescence.

Not so long back, a filter glass was perfected which permitted the passage of invisible ultraviolet or black light and prevented the passage of the luminous rays from the source of the ultraviolet. The use of this filter glass of nickel oxide of Wood permitted the examination of excited luminescence which was aroused only while objects were under the influence of the activating light. This temporary immediate response is known as fluorescence. Since fluorescence may lag, and not disappear at the exact instant of removing the activating light, it becomes a question for physicists to tell us if there is any actual difference between phosphorescence and fluorescence. This is beyond our purpose at this time.

The nickel oxide filter of Wood served its purpose well in introducing the possibilities of fluorescence in many fields of activity. Recently, a new set of filters has been made at Corning Glass Works which has permitted us to pierce still further the darkness beyond the visible violet of the luminous zone. This may require explanation.

Nearly every one remembers the lesson in physics when the teacher took a prism of glass to the window and showed an artificial rainbow on the opposite wall. This is about what Newton did some 300 years ago. What we see in the rainbow, or on the wall after white light has passed through a prism, is the result of breaking up the white visible light into its component colors. The colors we get from white light are: red, orange, yellow, green, blue and violet. These appear to us as a band with sharp limitations at either end. But further investigation has disclosed a zone of invisible radiation beyond the red of the visible spectrum. This zone has come to be known as the infra-red zone. We cannot see the infra-red. We do get the sensation of warmth from certain rays of infra-red when they impinge on the living person's sensitive skin. At the opposite end of the spectrum, there is an invisible zone of radiation also. Because this lies beyond the visible violet, it has come to be known as the ultraviolet. This ultraviolet is also invisible to our eyes.

For convenience and by convention a measure of wave length has been agreed upon to designate the radiations. The unit of measurement is the Angstrom unit. We will give the scale from which the Angstrom unit was derived:

One meter equals one thousand millimeters
One millimeter equals one thousand microns
One micron equals one thousand millimicrons
One millimicron equals ten Angstrom units.

An Angstrom unit is equivalent to one ten millionth of a millimeter or about one two-hundred-and fifty-four millionths of one inch.

The component parts of visible light have the following designations in the Angstrom unit scale:

Red	7700-6200 A.u.
Orange	6200-5900 A.u.
Yellow	5900-5600 A.u.
Yellow-green	5600-5300 A.u.
Green	5300-5000 A.u.
Blue-green	5000-4700 A.u.
Blue	4700-4300 A.u.
Violet	4300-3900 A.u.

I wish at this time to indicate a forward step in consideration of the invisible heat radiation or infra-red:

Infra-red	over 7700 A.u.
Diadermic heat	6000-14000 A.u.
Endodermic heat	14000-25000 A.u.
Epidermic heat	over 25000 A.u.

I will now give you two methods of division of the ultraviolet: According to the physicist:

Near ultraviolet	3900-3000 A.u.
Middle ultraviolet	3000-2000 A.u.
Far ultraviolet	less than 2000 A.u.

I have proposed the following physiologic divisions:

Intravital ultraviolet	3900-3200 A.u.
Vital ultraviolet	3200-2900 A.u.
Extravital	2900-and below

It may interest you to know how this physiologic division was reached. I took two fixed places in the ultraviolet scale: the barrier to ordinary window glass is 3200 A.u.; and the lowest limit of the summer noon sun on this earth is 2900 A.u. My division considers that the ultraviolet present in summer noon sunlight which does not pass through ordinary window glass is VITAL ultraviolet. Vital ultraviolet is the zone in sunlight which is necessary for the normal growth of babies. It is the sun which sunburns and suntans. It is the zone which affects the calcium metabolism of pregnant women. It has some of the lines which act on the precursor of the

* Read before the Society of Medical Jurisprudence, March 10, 1930.

antirachitic vitamin present in otherwise non-active substances.

One of the most fascinating subjects which first attracted my attention in the medicolegal application of filtered ultraviolet or black light had to do with the visible demonstration of the physiologic zoning of the ultraviolet. It had been appreciated for a long time that sunlight in summer had preventive and curative powers for the ills of growing children. It was only within recent years that positive proof was brought to bear on the problem. Experiments were conducted which showed that the health-giving rays of the ultraviolet are those which do not pass through ordinary window glass. Ordinary window glass effectively barred the health-giving rays of the sun. Not so long back, numerous substitutes for the ordinary window glass were offered to the poultry farmer for his chicken houses, and for the householder to use in his solarium or sun porch as well as for his office windows and bed rooms. The physicist with his spectroscopes and recording instruments was enabled to tell the limits of these glasses, but the methods are not available to ordinary mortals because of the expense and the training necessary to use them.

By a happy accident, let us say, I noticed that a mercury vapor arc in quartz lamp covered by a G986 A filter operating in a dark room set up a fluorescence in salicylic acid, but that if a glass plate were interposed between the mercury vapor arc and the salicylic acid, the fluorescence disappeared. In other words, I had a specific fluorescence; one excited only by radiation less than the 3200 A.u. which is the conventional cut-off for ordinary glass. If the various substitutes for ordinary window glass were used in front of the filter instead of the window glass, those substitutes which were efficient such as fused quartz (costing $180.00 a square foot) and others permitted the fluorescence as if no filter of their substance had been interposed. If, on the contrary, the glass substitute belonged to the group which did not transmit the vital ultraviolet any more than did ordinary window glass, the fluorescence of the salicylic acid was not excited.

One flagrant advertiser of a supposed health glass for the transmission of ultraviolet was called to count, and I was asked to give testimony as to the efficacy of the glass substitute offered from the physiologic basis. The absence of the fluorescence of the salicylic acid in the "vital ultraviolet detector" as the set-up is called helped to get a cease and desist order, if that is what the thing is called. At any rate, that particular product is no longer advertised as a health glass.

By a minor change in the "vital ultraviolet detector" it is possible to determine the qualitative presence of vital ultraviolet from sources of health rays offered to the lay person. These lamps are said to give sun light including the health rays of vital ultraviolet. An actual occurrence at a commercial exhibit will emphasize the need for further widespread knowledge of vital ultraviolet as compared with that zone of the invisible ultraviolet which readily passes through glass. An exhibitor showed the phenomenon of fluorescence in a liquid within a glass test tube as proof of the claim that his apparatus emitted ultraviolet. The same exhibitor was demonstrating a protective goggle which he claimed allowed no ultraviolet to pass, and thus was an absolute protection if worn, against ultraviolet conjunctivitis. What more simple than to place his goggles against the test tube and place them in front of his lamp? The fact that the solution continued to fluoresce disturbed the exhibitor to such an extent that he packed his toys and left the exhibition.

I was asked to advise a firm interested in financing inventions as to the truth of claims made by one of their accounts that a new glass patented had the virtue of preventing all ultraviolet transmission. The matter came up on Sunday morning, which seemed to be the only free time for both inventor and financier. It was the work of a moment to give an absolute visual demonstration of the truth of the inventor's claims. Fluorescence was NOT excited in the test objects set under the filtered ultraviolet apparatus when the new glass was interposed. The visual demonstration was effective, and appealed to the financier much more than reports from physics laboratories whether accompanied by spectrograms or not.

I had been experimenting for some time with the filters under the black light when I noticed that there was a yellow band across the wrist where I usually wore a watch which had a leather strap. The watch was on the other wrist that day. This chance observation led to a long series of studies of the skin in health and disease. I will mention that much which had formerly been known was repeated, but that the Corning Glass filter gave increased opportunity for study, and acted as if its use permitted me to uncover a deeper stratum in darkness than the use of the nickel oxide filter of Wood. It had been noted previously that natural teeth fluoresced brilliant white. False teeth, no matter how cleverly matched to the natural ones in ordinary white light of the sun or artificial sources look chocolate colored under the black light if of one manufacturer or yellow if of another composition. It has occurred to me that a record of the fluorescence of the teeth could be added to the identification chart, although it must be admitted that it would not be a permanent record but one which could be altered at will by having natural teeth withdrawn and false teeth substituted. The reverse could not occur.

The nails fluoresce vividly under the black light. If a person has had a manicure and the nails have been polished, it is possible to estimate how long since the nails had been so polished because the polish fluoresces and the growth of the nail is about one thirty-second of an inch a week. Prof. Curt P. Wimmer and I have examined a great many ingredients which go into the manufacture of cosmetics, and Miss Florence E. Wall and I gave quite some time to the examination of finished products such as lip and cheek rouge and face powders. This matter of the fluorescence of cosmetics is more than an academic matter. It is more than a stunt. Physicians will use the filtered ultraviolet more and more in their clinical examinations of patients. The fluorescence of cosmetics applied may be misinterpreted by the examiner who has not prepared himself for such examinations by studying many common articles as cosmetics. The knowledge of the fluorescence of certain preparations can be useful in a positive direction. One of my patients gave the history of recurrent attacks of inflammation of the forehead and cheeks. He had consulted many physicians, and although the eruption seemed readily amenable to treatment, it recurred at intervals. One physician colleague was sufficiently interested to go to the patient's home and office to ferret out some cause for the dermatitis. The patient came to me with an acute eruption of tinea or ringworm of the toes

acquired during a winter vacation in Nassau. He was anxious for me to see the recurring skin eruption, but while under my care for the toe ailment, the face inflammation did not recur. One Friday he came in to show me the forehead and cheeks. Examination led me to believe that the eruption was due to an external irritant. The patient denied using any. I placed the patient under the black light. There was a fluorescence of the hair of the head, of the eyebrows, and of the skin of the forehead and the cheeks. The type of fluorescence was that usually associated with toilet water, so-called hair tonics, etc. I gave the patient a mirror and he saw the fluorescence. I interpreted the appearance as being due to the application of a hair wash by the barber. The patient countered this by saying that he had been to the barber three times since he returned from Nassau and this was the first time that the eruption had recurred. My reaction was that this was the first time in his three barber visits that he had gone to his regular barber, that is the one to whom he had gone prior to his trip to Nassau. He then recalled that this was the actual case. In this instance an innocent barber may have easily enough been thought to have caused the eruption since it was easy enough after the disclosure of the black light to get the relationship of visits to the barber and the recurrence of the skin eruption of the forehead and cheeks.

By black light analysis of the arms of a fairly aged woman, I was enabled to enlighten her physician and to relieve the family who had been led to believe that she was getting an edema of the forearms with gradual extension up the arms to the shoulders. Black light examination revealed that the progressive edema of the arms was due to the fact that an irritating antipruritic was being applied to ever increasing areas of skin of the arms, and that the edema was not due to failure of vital organs.

A recent application of filtered ultraviolet which requires a knowledge of the appearance of make-up including lip stick and rouge under black light is a method of theatrical illumination. Innumerable effects are possible for sudden dramatic changes by substitution of black light illumination for ordinary illumination on the stage. One of the pioneers in this field is Mr. Strobell of New York City who has made many fluorescent and phosphorescent pigments for theatrical work. The Cooper Hewitt Company of Hoboken, New Jersey, have a new source of black light illumination for stage work. It is necessary to mention Mr. Hall of Boston, Mass., who has given considerable attention to stage lighting effects as his avocation. Prof. Wimmer and I gave some attention to this application of black light some time ago, using the apparatus of the Hanovia Manufacturing and Chemical Co., of Newark, N. J.

An important place for black light in the cosmetic industry has to do with the substitution of well known trade marked perfumes with cheap imitations. Some time ago there was a well fought case of which the outstanding features were about as follows: The market was flooded with small containers of what were said to be refills of standard high priced perfumes. The claim was made that large bottles of these perfumes were bought and then independently of the manufacturer small vials were filled, labeled, and sold. The fact that small amounts of exquisite perfume with well sounding trade names could be bought at low price caused the sale of these small vials to become enormous. It did not take long for the manufacturer whose perfume was said to be thus rebottled to determine that more perfume was being sold in small lots than he manufactured. His own chemists reported to him that the article sold as the product of his factories was identical according to all possible tests. When a chemist was found to undertake the manufacturer's side of the case against the refiller, he stood alone against a galaxy of eleven chemists hired by the other side. I will not discuss the case further, than to state that the case was won by the manufacturer of the perfume and the refill business was stopped. Suppose though, this manufacturer had used in his perfumes one or another of the possible indelible dyestuffs which write their own signature under black light by virtue of specific fluorescence? How simple it would have been to determine the absence of this fluorescence? How soon the judge and jury could have been convinced that the refill did not contain the product of the manufacturer? This field of usefulness has not been sufficiently touched upon. There is, for example, sophistication in drugs. Let us take one example: when we needed some natural oil of wintergreen to test under fluorescence, Prof. Wimmer had great difficulty getting a sample which could be certified as being actual natural oil of wintergreen. Through friends, he received a dram (about a teaspoonful) which had been actually drawn from the still by the father of the owner of the firm of chemical supplies and carried a note to that effect. Open market orders for natural oil of wintergreen are being filled to-day! Not long since, a manufacturer of synthetic oil of wintergreen purchased what was supposed to be natural oil of wintergreen and was convinced that he had repurchased his own synthetic preparation at a proper advance in price, of course. Natural oil of wintergreen can be told from the synthetic by examination under black light.

The amount of the fluorescing material need be pitifully small. Some materials fluoresce even if diluted one to five million parts. During a study of bootleg whiskey products it was possible to detect under the black light the fluorescence of the adulterant of the industrial alcohol from which the bootleg whiskey was made despite the fact that the original commercial alcohol had been redistilled and that casual laboratory examinations for diethylpthalate had been reported negative. By the judicious use of various-colored fluorescing dyes it should be possible to determine the source of industrial alcohol to the bootleg trade. The various districts could each have its individual dye and fluorescing signature. Even if the ingenuity of the high paying bootlegging fraternity would finally determine the process and could conceivably remove the fluorescing dye to less than the amount which detects itself under black light, it would mean a more complete washing of the alcohol to remove its injurious products, and while all this was going on the proper authorities could supplement these brief remarks with more intense studies.

The counterfeiter would have a much less happy time of it if the use of black light were universal in banks and counting houses. No matter how cleverly a counterfeiter could prepare his notes to match the color of the original in white light, it would be well nigh impossible for him to arrive at exactly the same makeup of the tints as to have the counterfeit and the original appear the same color under the black light.

Counterfeiting or alteration in stock certificates

would thus be readily determined. A glance under the black light and the modification is at once apparent. Many papers even if from the same manufacturer which appear identical in ordinary light appear very differently under the exciting fluorescence of filtered ultraviolet. Even the same paper of different age, and kept under different conditions of storage, would appear very different under the black light although under ordinary white light such differences would not be suspected.

Possible substitution in the purchase of goods after the selection of the sample could also be told without expensive and long drawn out examination of the average test. Further, laboratory tests usually require the destruction of the material but examination under black light leaves the examined material unchanged.

The ease of examination also makes it possible to examine a complete lot in a very short time. In jails abroad the letters which the prisoners are permitted to send to their relatives and friends are examined under filtered black light before delivery is made to the post office. Writing with such materials as the prisoner has always available as sputum, urine, milk, lime water (from walls), etc., is invisible writing unless heat is used to cause the secret writing to appear brown or black. The old heat process took much time, and had the great disadvantage that the letter could not be sent since the secret writing was no longer secret. Under black light such secret writing is read without altering the letter, and the plans of the prisoners for escape, or smuggling of drugs or arms, are permitted to go toward consummation. Of course, the offenders are then captured red handed.

Invisible ink may also be used in the protection of checks, notes, or other valuable papers. This protection becomes the invisible foe of the check raiser. The protected amount can be read under the filtered ultraviolet without in any way injuring the document. A bill to be used in a bribe case may thus be prepared and the very evident (under black light) statement "bribe-officer 89652" becomes legible to the judge and jury instead of the present practice of marking bills with pin points, or small lettering, or tearing off the lower corner, etc.

The filtered ultraviolet light also serves to detect alterations in checks, and other papers since erasures become visible under its rays which are invisible in ordinary light. Here is a new foe for the bank teller who is falsifying his ledger since the bank examiner can with this method glance at a page and see within a moment what entries had been tampered with by erasure. The examination of the books of a defaulting banker should be facilitated, particularly as good usage in banks forbids erasures of errors. The bank examiner would be enabled to limit his scrutiny to accounts showing erasures on the ledgers by which the teller kept the secret of his activities from becoming known.

It is only a step further to mark cloth, silk, or any commodity made and sold in large quantity so that if stolen it is not possible to determine the intermediate source with accuracy. A mill delivers the same silk to any number of jobbers and even if the silk is located after theft it is not possible to identify it as that stolen from any particular jobber. Tags and other evident marks of ownership are usually removed. The invisible mark of ownership can be arranged and rendered visible under black light giving absolute proof of ownership by shining brightly. Attempts at erasure of such marks would still be evident and would be circumstantial evidence as good as a tampered brand in the day of the cattle range.

The filtered ultraviolet is useful in the examination of old masters and modern falsifications of the same. Old marble can be differentiated from new marble which would be useful in the study of modern made antiques. True diamonds can be told from imitations, although all diamonds do not fluoresce the same. This led to a ludicrous error some time ago. A very youthful but enthusiastic salesman arranged to demonstrate the detective abilities of the Wood filter. He arranged for a meeting with a police commissioner who prided himself on his jewels. At the occasion of the demonstration the salesman commented upon the fact that the filtered ultraviolet would detect real diamonds from false ones. The police commissioner held his own ring under the black light. By one of those curious twists, two of the diamonds in his ring fluoresced vivid blue, and the third gave off a shiny yellow color. Due to inexperience and lack of tact above all else, the salesman announced that two of the stones were genuine and the third was an imitation diamond. Of course, the police commissioner knew better than that and ordered the apparatus and the salesman out of his office.

Genuine pearls can be told from the most cleverly made imitations, but in my examinations of cultured pearls, I have been unable to distinguish them from genuine native pearls. The reason is, of course, that the chemical composition of the native pearl and the forced deposit of the cultured pearl is exactly the same—both coming from the oyster.

The examination of silk worm cocoons has brought forth some very interesting things. In ordinary light, cocoons seems to be of two varieties—one white and the other yellow. The silk strands drawn from these cocoons is also either white or yellow before it is dyed. Under the black light, the cocoons and the silk are of more than two hues. In fact, some of the seemingly and actually white cocoons under ordinary light assume the same fluorescence as do the apparently yellow cocoons. The industrial application of this change probably has to do with the apparent faults in dyeing. But further, if the cocoon is injured, the color under white light does not change at all, but under black light, the dying or dead or non-viable cocoon assumes an entirely different color easily distinguished from the living or viable cocoons. I understand that this method of examination is employed in the silk worm culture centers of Japan.

Tissue changes in human beings can also be recognized under black light although invisible in ordinary illumination. The study of cancer tissue has been facilitated. Heretofore unknown divisions of the tissues have been recognized by their appearance under black light without the usual laboratory technic. The various tracts in the brain have also been marked in autopsy studies. Very minute changes may be made apparent under the black light. It is known, for example, that the application of a mercury vapor arc in quartz, clinically water cooled model (Kromayer lamp) for about 30 seconds causes the appearance of an erythema or sunburn redness which is visible some hours later on the skin of a previously unsunburned white person. If the skin is examined under black light, the site of the sunburn to be appears to the eye within a second of

the time of the application of the Kromayer lamp. And the skin of a Negro will also show the site of application, although the Negro's skin would not evidence sunburn at all in ordinary white light. Further than this, after the sunburn from the Kromayer lamp, or from the summer sun, has apparently faded or even disappeared if examined in white light, the examination under black light will cause the appearance of the original sunburn to assert itself to our vision. This fact makes it feasible to sun mark the skin of children at birth with an invisible tattoo; and children who have the wanderlust may be "tagged" in this manner.

The radiation from X-ray also is discernible under the black light if and when the biological effects of the X-ray have caused some change in the skin leading to the precursor of cancer. There are many people walking about who have inadvertently or because of the cupidity of certain commercial establishments purposely been over-exposed to X-ray. I will specifically mention the quackery of promises of removal of excess hair from the face of women. The over-exposure to X-ray leads at some distant date to the appearance of scaling, thinning, discoloration, and ultimately skin cancer. Examination under black light gives a characteristic picture of this condition. I will quote a recent case: A child had a birth mark on one side of the face including the ear. Radium had been applied. This was followed by a number of ulcerations leading to scarring. The resulting clinical appearance some time later was such as to lead to the conclusion that parts of the scarring were due to excess X-radiation. Other parts of the scar were thought to be due to spontaneous ulcerations. Examinations under filtered ultraviolet radiation gave the evidence that no part of the scarring was due to the application of the radium, and that it was all due to the spontaneous ulceration. The possible medicolegal complications of such a case must be evident to all.

It would appear from the examples which I have brought to you in this consideration of filtered ultraviolet or black light that there are many fields of usefulness for this radiation. In fact, it would appear that its application is almost all-embracing.

18 East 89th Street.

Discussion

Miss Margaret H. Kennedy, Doctor of Pharmacy (by invitation): I feel that I am not able to add a great deal to this most interesting talk of Dr. Goodman's but it was Dr. Goodman who through his contacts with Dr. Wimmer interested him in the possibilities of the use of ultraviolet light in detecting adulterations of drugs, which of course you know is very widely practiced. He has shown you some things of that nature, and I will mention a few more, and then tell you of the field in which we have specialized. We have found that zinc oxide powder has a brilliant yellow fluorescence, which is not characteristic of any of the other zinc salts. We also found that benzoates fluoresce a pale lavender and in solution this color is also characteristic, although not so marked as in the dry state. Perhaps the most striking fluorescence is that of the salicylates. They fluoresce a brilliant bluish violet white.

No two people will agree on exactly what one color may be, and we have had great difficulty in trying to standardize these colors. Some work has been done, but it has not proven very satisfactory.

It has been found in food work that whole milk fluoresces a very pretty canary yellow and skim milk has no fluorescence whatever, and you can see the value of this knowledge in detecting whether a sample is whole milk or whether it has been adulterated with skim milk. This same fluorescent color may be made use of in identifying whether a cheese has been made from whole or skimmed milk. Also in butter fat there is the same characteristic yellow fluorescence of whole milk, while in oleomargarine we get a pale blue fluorescence. If butter has been adulterated to the extent of 25 per cent. with oleomargarine, it can be readily detected. In the case of olive oil, which is often adulterated with a cheap poppy seed oil, olive oil has no fluorescence, but poppy seed oil has a very bright blue fluorescence and when it is added, even in the most minute quantities to olive oil, we still find this blue fluorescent color.

Dr. Wimmer saw the possibilities for the use of this lamp in the detection of adulterants in essential oils used in perfumery, and we have spent two years on this work. There have been some findings which were successful and beneficial, and many others which were not so helpful. For instance, oil of wintergreen, which is perhaps one of the hardest oils to find in a pure state on the open market, fluoresces a very pale milky white. Sometimes one might almost say there was no fluorescence at all, in contrast to oil of sweet birch which fluoresces a pale blue. Recently we have done some work with oil of wintergreen and the oil of sweet birch and find that by adding, drop-wise, concentrated sulphuric acid, we can distinguish the oil of sweet birch which gives a yellow fluorescence from the oil of wintergreen, which gives a bright blue violet color. This color is practically the same as that obtained under the same conditions from methyl salicylate or synthetic oil of wintergreen. However, this test would be of no real value in distinguishing the natural from the synthetic oil, but it would be of value where oil of sweet birch had been substituted for the pure oil of wintergreen, since both of these oils have as their main constituent methyl salicylate. Oil of lemon is another very interesting oil. It fluoresces a very pale blue but in alcoholic solution this blue color is much more intense. Then if you remove the terpenes from the oil you will find that it now has a dull brown fluorescence. An oil of great value is oil of rose, and this oil is adulterated to a large extent. In fact, there is more artificial oil of rose on the market today than pure oil, and the pure oil may be differentiated from the artificial oil in the following manner: pure oil of rose when mixed with a few drops of sodium hydroxide solution gives a very characteristic green drop with a blue edge, in contradistinction to the artificial oil which gives a dull yellow drop. Oil of sweet orange flower fluoresces a brilliant blue violet, while the oil of petitgrain, which is often its adulterant, fluoresces a pale blue. Often when oils are adulterated they are hard to distinguish from the pure oils, but sometimes on fractionation their fractions will have the characteristic fluorescence of the adulterant or will show definite variations in comparison with the fractions of a pure oil.

Another substance on which we have done some work is civet. It is one of the most expensive and most important articles in the perfume industry and is much adulterated. It fluoresces a pale yellow brown and one of its most important adulterants is petrolatum, which fluoresces a brilliant blue white. We sometimes find that they have been so completely mixed that the presence of the petrolatum does not show immediately, but if it is dissolved out with a suitable solvent, it shows very decidedly. The addition of as little as 1 per cent. to civet can be detected in this way.

I could go on and tell you many more things along this line, but this is sufficient to show another field of work in which this lamp may be used, and its probable value where adulteration is so largely and cleverly practiced.

Miss Florence E. Wall, Fellow of the American Institute of Chemists, Editor of *The Chemist* (by invitation): One specialized use of this ultraviolet detector, on which Dr. Goodman just touched, was the reason for my having been associated with him in some of these investigations. I happen to be a chemist, devoting myself to the chemistry of cosmetics in a rather peculiar way. For the past five years I have been working with and for hairdressers, and during this time I have met many instances of the opposition which exists between the hairdressers and the medical profession. While I hold no brief for the hairdressers, I do feel that a better mutual understanding could be reached if it could be generally realized that modern cosmetics belong in the field of chemistry, rather than in that of medicine.

This is particularly so, because modern cosmetics have gone so far over to the side of organic chemistry. The old metallic hair dyes, for instance, are antiquated, and now practically going out of use. But in the cases of this kind the use of an ultraviolet detector might well serve to solve some of the medicolegal problems which come up in suits against hairdressers and cosmetic manufacturers.

In connection with this, I might mention that I spent six months in Europe last year, making a study of the cosmetic and beauty culture business in ten countries, collecting data on the medical and legal sides as well as on the commercial and aesthetic sides of the business. I met, among others, a very prominent Italian physician, who is, I believe, a professor of dermatology at the University of Naples, and in answer to my question about possible dermatoses due to cosmetics which had come to his attention, he told me of one case in which he had recently been called in consultation. The man had been com-

plaining for some time of serious stomach trouble, and showed all the symptoms of metallic poisoning, but nothing in his occupation could account for it, and he would not admit any other reason for it. After he had spent several weeks in a hospital the doctor noticed one day that his hair and moustache were quite white, and the patient then admitted that he had used a certain hair dye for some time. It had never occurred to him that this might have been the cause of his trouble, so he never thought to mention it during his preliminary questioning, but it was perfectly obvious that every time he took a drink of any liquid, he sipped off a little of the metallic dye.

When I heard the story, I said, "You should have had an ultraviolet detector on him!" and in explaining what I meant, I described to the doctor what I can show you here and now. Under this light, all metals look dead black—just as my ring does. The presence of any metallic preparation on the hair shows up dead black in a sometimes startling manner. This card holds a set of samples prepared by using a well known hair restorer for three, six, nine days, etc.

This second set of samples has been made with a well known compound henna dye; they are practically all alike, and contain copper and iron. This other sample was prepared with a lead dye; but you see that all these metallic preparations eventually have the same effect on the hair. They simply coat the hairs with the metallic compound and all look black.

This orange color has been produced with vegetable henna; and this color, I might say, is the shade that every one of us in this room would show if we used enough of this henna dye.

In this connection is one of the most frequent causes of disaster in beauty shops. Hair that has been dyed with an alleged "vegetable henna" which really contained some of these metals usually breaks if peroxide comes in contact with it. The patron sometimes goes to a physician, but he usually does not know anything about it, because ordinarily the physician does not bother about hair dyes. He is against them, but if he were asked for one, he would probably pull down an old book and write out a prescription for one of these lead preparations which I have just mentioned.

If a suit comes up, the hairdresser goes to a lawyer, but he usually does not know anything about hair dyes, either. It has frequently been difficult to prove that it was the presence of the metallic dye which did the damage, rather than the preparation which followed it. And since women will usually deny the use of harmful preparations, one must have other means of proving their presence. A trained eye is often sufficient, but chemical analysis is comparatively simple, and now this physical means—this ultraviolet detector—offers the last word.

In the matter of facial cosmetics, powders, rouges, etc., we frequently read absurd articles. People love to write in women's magazines and the public papers about the deadly danger of lead in face powders, whereas I believe that lead in face powders has been prohibited since 1856. I read not long ago of a young man who became seriously ill because his fiancée used a certain face powder; the inference was that in kissing her he removed enough of it to make him sick! This seems rather far-fetched. So far I have not found any commonly used American face powder which contains white lead, but it would be easy enough to detect it if it were present.

Cosmetics are being made more and more from synthetic organic compounds, and are surprisingly simple. We wonder sometimes, when there is so little actual difference in their composition, why the manufacturers go to the trouble of putting out so many of them.

In conducting their tests for theatrical lighting, Dr. Goodman and Dr. Wimmer saw some very weird and terrible effects due to the cosmetics used by the actors. You have seen how some of the dyed hair shows up; the rouges and powders were worse in their way. Zinc in powder, for instance, becomes a luminous yellow; certain pale pink powders become dull brick-red; eosin in the rouge or lipstick glows salmon-pink; scarlet R becomes luminous purple, etc. So you can understand that if any practical commercial use of this device is to be made in theatrical effects, the matter of cosmetics must be given serious consideration.

Mr. Strobell (By Invitation): I did not expect to say anything about the subject which Dr. Goodman covered so well, but he mentioned some of the things which we tried a short time ago, and while I am more interested in the theatrical field and the spectacular effects which can be obtained by these lights, and the audience is more interested in the medical end, I may add a few words to Dr. Goodman's. Invisible light, as you saw here, can be utilized with highly sensitive fluorescent materials to give out high brilliance, and when we paint our costumes and scenery as many of you see it on the stage, and throw an invisible ultraviolet light on that, everything else will be black because it is not fluorescent except those things which have been painted, and you many times are surprised to see girls beautifully dressed, and appearing perfectly white, when suddenly the light changes, and they change to blackface, and you wonder how and why the girl changes to a Negress. The whole thing is done by having the dresses painted with fluorescent colors, the faces not painted, so they appear black when the light is turned on them. It happens sometimes that girls make up without knowing of some of the aforementioned make-ups, and we expect them to turn out black, and when the lights are thrown on them, they show glowing beautiful colors. These lights are most effective in the theatrical field, and probably also in the advertising field display work, not only with the invisible light, but with invisible colors. The effect on my hand under the light (displaying hand) was used in one of the present stage productions, where the hero was on earth and later dead, in "Death Takes a Holiday." He can not go off-stage, but he makes up invisibly, and when the ultraviolet light is used, a skeleton comes out.

L. T. LeWald, M. D.: In regard to Dr. Goodman's remark about bichloride of mercury and calomel, I was wondering if any commercial use had been made of that. I remember at one time the United States Army found that some of their calomel and soda supply in the Philippines had changed to bichloride of mercury, and not knowing any way to detect it in large quantities, they discarded thousands of dollars' worth, probably of perfectly good calomel. I wonder if filtered ultraviolet rays would be useful to detect small changes where calomel has changed to bichloride, and if by this method we could have sorted out the different drugs, and been able to discard only those which had changed to bichloride. One other question,—I notice the Metropolitan Museum of Art uses ultraviolet light to determine antique from recent marble. Has Dr. Goodman had any experienced with that?

Harry M. A. Reilley, M. D.: Did I understand Miss Wall to say that lead is not being used much in this country in face powders, etc.?

Miss Florence Wall: I believe it is not.

Dr. Reilley: A short time ago I read in the *Journal of the American Medical Association* of two girls in one family who had a definite case of lead poisoning after the use of face powder which was given by a relative; there was no mistake in the diagnosis; the cardinal symptoms were present, with pronounced "wrist drop" and "blue line" on the gums. That was a few years ago.

Miss Wall: We find in the American market lead is not being used. It is still in some of the "superior" products from the other side, but in those I have tested we have found no lead.

Herman Goodman, M. D. (closing the discussion): In regard to the mercury preparations, the tests have been made on homeopathic doses of calomel. You remember the Homeopathic school takes 1:10, and reaches a dilution of 1:100,000. It is possible with the ultraviolet light to decide whether the original amount of calomel has been evenly divided, even where it reaches the sub-division of 1:100,000. They mix the calomel with the milk sugar to dilute it, and then we can see whether the particles are properly distributed or not. The use of cocaine which is diluted down for drug addicts can be told under the fluorescent light, as probably no chemical tests can demonstrate it with the ease with which the light can do so and the rapidity with which it can be done.

As to Dr. LeWald's question about marbles, I have had no experience with antique marbles or paintings. It is possible to detect the earlier works of artists under this light, as with X-ray. Another field in which this lamp has been used is in the study of ancient sheepskin writings of the monks. The more recent monks decided what was written on the old sheets was not worth very much, and so they wrote over it. Nowadays one believes the ancient writings are worth more than the moderately ancient ones, so the sheepskins which were used in those days are examined under ultraviolet light to reveal the ancient writings of the older monks rather than those of more recent times.

I believe there is no field of human endeavor in which something cannot be learned if filtered ultraviolet light can be applied to it. That goes for the industrial, the professional, and every other field. I touched on as many as I could. I did not want to take up your energies by talking about the things we find in the skin. If a patient has a ringworm of the hair the hairs under this light fluoresce a greenish yellow, and there is no mistaking it. The child may be examined by competent dermatologists, but it is impossible to examine every hair on the child's head, and under this light, even in the treated cases where the child has had the hair removed by X-ray, a single area will fluoresce, and it is an absolute diagnosis in ringworm of the scalp. I have examined a number of children with favus, and if a lamp like this were installed at Ellis Island, instead of the ordinary examination which is given, they could detect favus of the scalp in people coming into the country, and they could be returned, instead of becoming a charge on each one of us who support the public hospitals and other institutions de-

voted to the care of ringworm and favus. To thoroughly examine a scalp for ringworm the examination will take 20 to 25 minutes, while under this method one does it in as many seconds.

Another disease of the skin in which the lamp can make an absolutely positive diagnosis is pityriasis versicolor, a fungus disease of the skin. The fungi will be a greenish yellow color, and one can determine areas in the skin where these parasites have gained a foothold. In such conditions as chronic, long-standing inflammatory diseases one may get a more recent lesion of the skin, and by this lamp one can determine whether it is a recent or older inflammatory change in the skin. In the cancer cases one determines not the apparent visual limitations of the skin cancer in the skin, but with this lamp one can determine much more than is apparent to the eye under ordinary light. This is of interest to surgeons, and Dr. Semken, when he was at the Skin and Cancer Hospital, became interested in it, because he had an empiric site set up for operation in cancer cases, and when the patients were examined under this light, he changed his estimate, because then his margin of safety had to include the evident encroachment of the cancer as it was shown under the black light rather than under the ordinary light. Changes of the skin which are going to appear to-day or to-morrow or next month become evident under this light to-day, and in the examination of a syphilide of the cutaneous surface, the skin will give evidence of the generalized disease which is invisible under ordinary light. There are a number of other conditions, but these are the ones I will touch on as being most widely useful to the doctor who looks at the skin under ordinary light, and with this ultraviolet light he sees a little more than with the ordinary light.

The American Prison in the Twentieth Century*

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As to the Society of Medical Jurisprudence, although not to the manor born, nor in the manner educated, I feel at home in Zion. Criminological experience is more and more assimilating, or, at any rate, bringing together under a single head, and for a single and unified purpose, the two professions represented in this Society. I might appropriately refer to an experience I had a few years ago after Dr. Karl Menninger, a distinguished psychiatrist who is certainly not a stranger to you, had delivered an address for me at the National Conference of Social Work on the relation of psychiatry to the treatment of the offender. He was a "pinch-hitter." Dr. Bernard Glueck was to have delivered the address, but had been called abroad and could not be present. So on the spur of the moment I got Dr. Menninger to speak in Glueck's place. He is a very attractive personality, very confident and an excellent speaker and he wound up his address, first facing me on the platform, and then turning to the audience, with these words: "Just as medicine has taken over surgery from the barber, and made of it an art based on scientific knowledge, so medicine is here and now ready to take over the treatment of the criminal from the lawyer and make of *it* an art based on scientific knowledge." Though myself a lawyer, I was almost ready to admit that the analogy was not so grotesque as it must have seemed to most of the audience. My only serious doubt was whether the psychiatric division of the medical profession was as ripe for the transfer as Dr. Menninger believed it to be.

I am skeptical of my qualifications to pronounce on the question before the Society of Medical Jurisprudence—more skeptical than I would like to confess. My personal experience with the problem was a rather brief one. I confess I was on the wrong side of the prison to come to a real understanding of the prison problem. I occupied an official position, and no one in an official position can understand very much about a prison —what it is, and what it does to its inmates. We are cut off by lack of sympathy and understanding, most of all by lack of understanding of the social experience of the prisoner within the prison walls, something which we do not even faintly comprehend.

The recent outbreaks of violence in a number of American prisons, repeated in our own prison at Auburn, make it almost essential, in any comment on the prison in our time, to make some reference to that situation, to make an attempt to understand it. Outbreaks in prisons are not very common. I marvel at that. If I did not know prisoners as well as I do, I should marvel still more that human nature does not more often react with violence to the conditions of prison life as I have seen it in most of the penitentiaries or State prisons of this country. It speaks pathetically of the capacity of the human spirit to bend under the yoke without breaking. A good many reasons are given for the recent outbreaks—the unprecedented overcrowding, the corroding idleness, the inadequacy of the food and what-not. But these are old sources of trouble, all of them. When I was in Sing Sing fifteen years ago we had sleeping accommodations, such as they were, for 1200 men. But we had 1500 inmates and upwards, which meant that 600 of the men had to be "doubled up," two in a cell, in those old cells, built in 1827, and in 1840, 75 years before, condemned by a distinguished visitor from abroad as being utterly unfit for human habitation. But with all the overcrowding there were no outbreaks. It was taken by the prisoners as being one of the things they just had to stand. I never had a complaint from a prisoner except on one occasion, when a man came to me and asked if he might not be transferred. I said "I cannot give you a cell to yourself." He said, "I did not expect that, but I have had a new man put in with me and he coughs all night long, and I am afraid that he has the TB, and I am scared." That was the only complaint I had of the overcrowding in the prison. The shops were almost as much overcrowded as the cell blocks because of the effort to find work when there was not enough work to go around, so that we had three or four men doing the work of one, and all doing it very badly and without proper machinery or expert direction. The idleness in the Ohio State Penitentiary with a population of 3,000 to 4,000 has been marked for a dozen years or more. There they have an "idle house" with 1200 to 2000 men, sitting on benches during all the working hours of the day, in a great big barnlike hall. They are, of course, forbidden to move from their places or to communicate with one another, sitting there side by side with their hands folded, waiting for the hours to pass. In the Federal prisons of the country we have for several years had very much the same condition of overcrowding that exists now. In the last few years this has been greatly aggravated, but I never heard of any particular complaints from prisoners with respect to the idleness or overcrowding. To one as to the other, the inmates adjust themselves. It is fate. It is part of the universal stupidity, and they do not expect anything else from prison administration or from legislatures. I suppose that one of these days, these condi-

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tions will change; some day we shall have more prisons—and then they too will become overcrowded. I once heard the public architect of the Dominion of Canada say that no prison should be built of such durable materials or constructed in such a way that it could last more than twenty years. They are more fortunate in Japan where they can usually count on an earthquake to shake down a prison about the time a new one is needed.

But there is another count in the indictment of the prison of the Twentieth Century in America—the matter of prison diet. The situation that developed the other day in the State Penitentiary in Missouri, is not such an uncommon one. There was no outbreak of violence but only a mass protest, on the part of the prisoners in the mess-hall against the food which had been furnished. That happens occasionally. I suppose there is nothing about which prison officials are more indifferent than the diet of their prisoners. It is not a matter of lack of funds; it is a matter of lack of understanding of the importance of diet to the health and morale of the prison population. Prisoners will put up with all these other inconveniences that I have described, knowing that these could not be remedied by the prison officials, but they know they could be better fed even on the petty allowance which the State provides for them. I made an experiment in Sing Sing. I had an allowance of fourteen and a quarter cents a day for my prisoners' food, and they were getting rotten food. I did not know what to do, but I got an intelligent and capable woman, a nutrition expert from Teachers' College of Columbia University, to come up and make a study of the prison diet, and inside of a month we had a diet, without the addition of a penny of expense, which changed the whole atmosphere of the prison from one of sullen distress to very happy and friendly cooperation with the prison authorities. I think there is nothing which aids more to bring about spiritual harmony than decent food. Perhaps that is a question more for the clergy than for the doctors. We should need a clerico-medical society to pass on that; it is not a question with the prison authorities. An old-fashioned prison doctor came to me and asked me what had happened. This was after the new diet had been in operation one week. He said "I am not getting more than one-fifth as many men for my daily medicine call as I was getting a couple of weeks ago and have had all along. What has happened?" I said, "Could it make any difference fi the men were getting a diet which they really enjoyed and got away with it?" He said, "It might." At about the same time the prison farmer came to me and said, "For the first time in my life here, and I have been here for thirty years, I have got to ask for an appropriation of money to get meal for the pigs." Being a town-bred warden, I asked, "What do pigs eat?" He said, "The slops from the mess-table, and for the last week there haven't been any slops at all." I said, "Which is better, that the pigs should eat the prisoners' food, or that the prisoners should eat their own food?" and so we decided to buy meal for the pigs, and let the prisoners eat up their own food. I wonder if I am wrong in assuming that the almost complete disappearance of conflicts among the inmates, of the disorder, the fretful and irritating kind of disorder that goes on in prisons, may have been due in some measure to the fact that we were making the most of our meager allowance and furnishing a decent, appetizing diet. My superiors at Albany were worried because they thought I was pampering and coddling the prisoners by giving them their money's worth—the worth of the money that the State had appropriated for that purpose.

I have no excuse to make for going into these details, because they all go to make up the picture of the prison as it exists in our country today, with its callous indifference to the feelings, the better impulses, the self-respect and the sense of decency of the victims of the system.

Well, we have still to account for these outbreaks of desperation in various parts of the country from Canon City, Colorado, to Dannemora in New York. Not any of these things to which I have referred is the cause of them. Men have never rioted, so far as I am aware, because the food was unpalatable. They have sometimes protested more or less decently, but they have never rioted. They have never presented themselves with guns and tried to shoot their way out of the prison. Always when this is attempted, it is done by some person who is "out of his head"—who is out of his head either as the result of mental disease or out of his head through desperation—and our prisons are full of desperate men as they have never been before. The Baumes laws have contributed to this, but the Baumes laws themselves are a symptom of something which lies deeper and which goes further back. I was at Sing Sing Prison, fifteen years ago, before I had ever heard of Senator Baumes, and was struck by the incredibly long sentences which the men coming in brought with them. I had been accustomed to think of a prison sentence of one to five years, or five to ten years, or, in very serious cases, of ten to twenty years, but already at Sing Sing there were scores, if not hundreds, of men who were serving sentences of twenty years and upwards, many of them first offenders, and who in many cases carried sentences of 25, 30, or 40 years. I looked up the records of past commitments and found that this had been going on for a dozen or fifteen years, from the very beginning of this 20th Century of ours. There were "lifers" too in my day at Sing Sing, nearly all of them men convicted of murder whose death sentences had been committed to life imprisonment or who had been sentenced to twenty years to life. There was always time off for good behavior, and even the man with "straight life" could usually expect to get out in from fifteen to eighteen years. And then, too, he was often filled with remorse and not unwilling to pay the penalty for his crime. These are the trusted men in prison. Every Warden in the country will tell you they are the men whom it is safe to send out on the prison farm without guards, the men to put in charge of a road gang.

But now, take the new type—the mere boy of 16, 18, or 20 years, coming in with a sentence of 20, 30, or 40 years, or for life as a fourth offender. I know one man, a first offender, who was sentenced to a minimum of eighty and a maximum of 104 years. I do not know why the four years were added, possibly for interest.

So the prisons are today full of men serving incredible sentences, young men for the most part. Coincidently with these long sentences, "good time" is eliminated by another Baumes law in New York and other states. "Good time" is the time the prisoner can earn off by good behavior. A man is sentenced in the Court of General Sessions, and by the time he has reached Sing Sing he has figured out the number of days he has to serve, and he always deducts the good time allowance; and if you ask a man in prison, "How long have you been here?" he will reply "three years, seven months, and fourteen days." If you ask how much longer he has to stay, he will say, "five years, eleven months, and six days." Every day is a day moved back from the future to the past, and he knows just how many days there are behind him and how many before him, and when it comes to the turning point of serving half his term, he tells his friends

about it. He is on the home stretch. That is the attitude of the average prisoner, stupid and intelligent alike. They are all like that. They want their liberty, and if it is in sight they will wait, and will earn all the good time coming to them, except those with cracked brains, the psychopathic, insane specimens who make all the trouble in prison.

The thing to marvel at is not that there are so many outbreaks, but that there are so few of them, and that there are so few men concerned in them. There was only a group of five or ten or a dozen actively concerned in any one of the prison breaks that we have been reading about. These are the desperate men, the men who had these endless sentences, and they took a perfectly natural and desperate chance to end it all. It is recorded in the newspapers, and it sounds to me as though it might be true, that, as two of the men stood trembling with guns in their hands in the last break at Auburn, one of them said to the other "Where do we sleep to-night, Jimmie?" and Jimmie grimly answered, "In Hell, I guess," and he was ready for that as an alternative to the endless years before him. I venture to say that the outbreaks are accounted for by that situation.

What I have said, in my attempt to account for the prison riots, involves a very curious fact that I cannot fully explain. I am groping for an understanding of it, and perhaps some of you will be able to help me to-night in the discussion. Why this swing toward an increased and unbearable severity of the terms of the offender in the United States? It is not the aftermath of the war. It started well before the war. It is not due to the war, because it has not happened in any of the European countries, even in the countries which were most terribly plowed up by the war. It has happened only here in this blessed America of ours, this land of the free, and of prosperity and well-being.

I have in my hand the "Report on American Prisons and Reformatory Institutions" made in 1927 by the distinguished German criminologist, Dr. M. Liepmann of the University of Hamburg. Dr. Liepmann had spent four months in the United States in the summer and fall of the preceding year. His survey was one of extraordinary thoroughness and had been undertaken in the belief that this wonderful western world, so distinguished for its enterprise and generosity, might have much to teach the old world in its treatment of the offender. He found much to admire in other aspects of our approach to the problem, especially in the increasing use of mental hygiene in connection with courts and certain types of correctional institutions, but he was only shocked by our prisons and by the "barbarous punishment" inflicted by the courts. "Offenses that in England and Germany would have been punished by a maximum sentence of from one to five years, in America resulted in terms of from thirty to forty years." He speaks of the enormous aggregate of men herded into the gigantic piles of masonry which compose our prisons, of the militarized mass-discipline which this involves, of the "antiquated" inside cell-blocks still being constructed, of the undeveloped state of our prison industries, with the lack of compensation for the workers, of the absence of any uniform governing principles in prison administration, and much else which in Europe has long since been outgrown. If you have any doubt of the essential soundness of this judgment passed on the American prison by this distinguished and disinterested foreign visitor, read the "Handbook of American Prisons and Reformatories" recently published by the National Society of Penal Information—read it and weep!

The former head of the English Prison System, Sir Evelyn Ruggles Brise, tells us (truthfully, I believe) that the aim of punishment in the law is three-fold—first, retribution; second, deterrence; and third, reformation of the offender. I believe also that this sequence or weighting of motives fairly represents the attitude of the community, as manifested in our penal legislation, in the policy of the courts and in the prison itself. Well, it will hardly be denied that our penal system is an effective instrument of retribution; to some extent it may also operate as a deterrent, though of that we cannot be too sure. Does anyone believe that it reforms the offender? Clearly the effect of prison life—whether in the prison proper or in the so-called reformatory—is directly the reverse of this. As Mr. Wickersham remarked in a recent address: "Experience has proven that while to shut a man in prison for crime might deter others from lawbreaking, so far as the immediate offender is concerned the chances are that by subjecting him to prison influence society has created an habitual offender and has saddled itself with a pensioner for life." Clearly there is something wrong, fundamentally wrong, with a system which produces such effects. One need not be sentimental nor even humane to deplore and condemn a method of treating the offender which either maintains him for life at the expense of the state or turns him out even more the enemy of society than he was before. Mr. Wickersham says that the remedy is more and better probation, and we can surely agree with him as to this, but must we not at the same time deal with the prison so as to make it less a machine for destroying the saving elements of the human personality and more and more a school of character and citizenship?

There would be some hope of achieving such a blessed consummation if we got away from the program of building bigger and more formidable prisons—like the monstrous pile to be erected in Attica, in the western part of the state, with its 2,000 tool-proof cells and its impregnable wall to cost a fortune of eleven or twelve millions of dollars—and should content ourselves with smaller aggregates of, say, six hundred men each, with the possibility of understanding and treating the individual case. Then we might not only hope to make education, the development of skill and the pursuit of the good life the main purpose of the prison, but we might also try out under more favorable conditions the remarkable experiment in cooperative living which Thomas Mott Osborn carried on a dozen to eighteen years ago in Auburn and Sing Sing and Portsmouth prisons. What he demonstrated was, first, that there is no necessary antagonism between the officers and the inmates of the prison and, secondly, that the prisoners may safely and wisely be made active participants in the maintenance of order and even in developing the constructive aims of the prison administration—results which cannot be fully achieved without enlisting the interest and good will of the prison population. But, whether with or without this simulacrum of self-government, it is not beyond belief that the prison of the future may, for many of those committed to it, become a help rather than the hindrance that it now is, to the good life.

At a public meeting the other day I indulged in a bit of word play with my friend, the distinguished lawyer and penologist, George W. Alger. In his address he described himself as "a hopeless optimist" with respect to the prison situation. I assume that he meant an incurable optimist. When my turn came, I countered by declaring myself "a hopeful pessimist." When I see how the world, especially our western world, has changed for the better in the last hundred years, the increase in knowledge, the spread of education, the immense amelioration

in living conditions, our more humane and intelligent treatment of the poor, the sick and particularly of the insane—I am amazed at the picture which our present-day treatment of the offender displays. Here we are still living in the past, but with this significant difference, that the last century was marked by a powerful humanitarian impulse, which, as I have intimated above, seems to have died out in our time. For it is to that century that we owe the indeterminate sentence with parole and the discovery of probation as an alternative to imprisonment, the elimination of children from the common prison, and the dawning of the juvenile court.

In short, I don't see how anyone can honestly assert that the American prison, as we have it today, is upon the whole any better than it was a century ago. There have been some changes for the better. The tread-mill is no more, the lock-step, the striped prison garb and the rock-pile are at least less frequently to be found, but we still, here and there, have the iron cage and, pretty generally, dungeons for solitary confinement suffered for the most trifling violations of arbitrary, unnecessary rules of conduct, and still in many prisons the inhuman rule of silence, and almost everywhere the rule of fear, translated into terms, iron discipline. More and more reliance on force and repression, less and less on morale. Is there not ground for pessimism in this picture of the prison of today?

But there is ground for hope also. The twentieth century has still far to go and there are signs that it will go far in its treatment of the delinquent. As I said at the outset, the thing upon which I lay my hope for the future is medical jurisprudence—the cooperation between my profession and the profession of medicine. More and more we are turning to a solution of the problem through the aid of the medical profession. Something was done in the establishment of the first prison clinic. The one in Sing Sing Prison was set up with the cooperation of a group of notable men, Dr. Walter B. James, Dr. Thomas W. Salmon, Dr. Pierce Bailey, Dr. Adolf Meyer—great names, all of them—all of them inspired by this faith in the future. The first object of this clinic was to eliminate the psychopathic and the insane from the prison population and to put them where they belonged—under medical care exclusively. And the further object was to furnish the warden and officers of the prison with an understanding of the individual inmate. We are moving the clinic back now and the psychiatrist at court will soon pass on the question whether a man shall go to prison or not, and to what type of institution he should be committed, whether wholly medical, or partly diciplinary, or what-not. Yes, I am a hopeful pessimist because I see that tendency strengthening. I see the public yielding little by little to the persuasions of the psychiatrists and the lawyers who have come to take the same point of view. We must have an understanding of the individual before we can do anything with him, and then deal with him, not on punitive principles, but on remedial principles, and that is where medicine enters the game.

Discussion

FRANK W. ROBERTSON, M. D.: Mr. Kirchwey has covered the subject so thoroughly that I fear there is not much I can add. I have made a few pencil notes as he talked, and I'm sorry I cannot agree with him more. I am glad that he takes the standpoint that crime really is largely a medical problem. I have harped on that for a good many years past, as some of you probably remember. The point about it being a medical problem is this: that some of our patients recover, and some do not. We must not forget that if we consider crime in any way as a medical problem, we must not expect to have all of our patients recover. Of course some will not.

Speaking about the criminal being fit to govern himself, and about the outbreaks in prisons, I do not agree with Mr. Kirchwey in regard to that. I am of the old school, and I may be slightly old-fashioned, because lately I think some of the outbreaks in the prisons are due largely to the more desperate character of the criminal of to-day. I think we are dealing with a much more desperate class than we were twenty years ago, and our discipline does not inspire the respect for constituted authority it did formerly. Of course I did not approve of the Welfare League. Neither did I approve of Mr. Osborne. I was very much opposed to his methods and to the Welfare League. I do not think prisoners are fit to govern themselves, and feel that they have proved their incapacity to govern themselves by their conduct outside. I feel they should always be under the supervision of citizen officers who have no particular axe to grind. There has been a great deal of talk in the newspapers within the last four or five years about prisons. Prisoners are not without access to outside news. All this talk has a very great tendency to cause unrest in prisons. If there has been a riot in a prison out West, they find that out, and think if it succeeds there, why not here? How they get their news so soon, I do not know. Up in Elmira I recall when President McKinley was shot they found it out almost as soon as we did. How it was done, I don't know; we could not find where the leak was. We had two telegraph wires; one from Buffalo and one from New York. The operators were supposedly trustworthy. I cannot believe it came out through them, but the prisoners knew.

One of the causes of minor outbreaks in prison is the food, of course. Few will be susceptible to any reformative measures if they are hungry or poorly fed. I think I can give you an illustration in point. When food was cheap we fed our men for something like eleven cents and six or eight milles a day. Of course those figures do not prove very much.

Another cause is overcrowding; the overcrowding is tremendous. I had 1545 men in Elmira in cell groups for 1200, and everyone connected with prisons knows that "doubling up" is a very bad practice—for health or morals.

Lack of discipline is one of the things which I want to speak about as being responsible for most of these outbreaks, because I am not in sympathy with the "letting up" of discipline. I hope I am not "hard-boiled," but I think we have grown lax in our disciplinary requirements in prisons. I do not think it would be possible to have the outbreaks we have had if it were not for this, which is partly due to politics. You cannot take John Jones from Skaneateles, who has been a barber, and make him a prison guard, because somebody got him the position. What kind of a prison officer will you have? The head of the prison should be absolute as far as hiring and discharging men is concerned. I discharged a man in Elmira, and I received a wire from a state official (politician) to know why I discharged that man. I put the telegram in the wastebasket. Suppose this man was retained. Do you think he is going to have any interest in being a real help in the prison? No, because he does not think the Superintendent is the real authority—he believes his loyalty belongs to politicians, and he will not render conscientious service.

Other things are the lack of instruction and the lack of work. And why do we have lack of work? Because the labor unions have caused the abolition of the manufacture of things in prisons which may be used outside; they said that the prisons cannot manufacture things to be sold outside. I do not believe in selling things made in prison in competition with free labor, but I *do* believe the employment in prisons could be largely increased if permitted to supply all the needs of state institutions. I think if there was really a will and permission, they could make a great many more things which are now purchased privately for our institution—not for private consumption, but for institutional use.

Another thing is that we are not instructing our criminals in prisons. All these things would help to make life bearable for prisoners and improve their condition.

About first offenders: do we get the first offender? This may be the first *felony* of which they are convicted, but they usually have a string of minor offenses behind them. What is the difference if a man breaks into a store and takes $22 or $26? In law the difference is between petty larceny (one year) and grand larceny (for which he gets five years).

I had a young fellow about 19 years of age, and because they are young, do not forget that they are real criminals. I consider the man 23 or 25 years old more dangerous than the "lifers." These young fellows will take any chance just for the pure bravado. This young fellow of 19 years was sent up for arson in the first degree. The maximum sentence is 40 years. Elmira is an indeterminate prison, where the prisoner is sent for the maximum term for the crime of which he has been convicted,

but any prisoner can make a parole at the end of one year, provided he meets the requirements. The men who commit homicides are the most intelligent; they are the most helpful in prisons, and if they break prison rules, are the most clever and dangerous.

What is the reason for this demand by the public for increased severity toward criminals? It seems to me the public in general has felt that we have been trying all these things on criminals for a good many years, without giving the public adequate protection, and especially when we read in the papers a man has been sentenced for twenty years, and then in three or four years we read this man has just been apprehended for another crime, and is receiving another sentence, and we wonder how he got out so soon. I think it is an attempt on the part of the public to protect itself, and it is the conclusion of the public that these men are getting out unreformed. It is therefore an attempt on the part of the public to lock the criminals up to protect itself from their depredations.

Mr. Kirchwey was speaking about foreign countries and the long sentences here compared with those abroad; and the reason is because the criminals all get out here, due to parole and commutation of sentence; suppose a man is sentenced for twenty years; he is out in a year or so. In England if a man is sentenced for five years, he does pretty nearly that, and another thing is the certainty if a criminal abroad is apprehended of a speedy trial, and conviction if guilty. The man who is apprehended is probably in prison or discharged within four months. Here it is nearly a year or more before he comes to trial at all, and he may be discharged for lack of witnesses; all this time he is in jail. There is no redress for this—nor satisfaction for the public.

I made two or three notes before I came here this evening, because I had not seen Mr. Kirchwey's paper. Of course we must think of the object of sequestration of a prisoner. We must get out of our mind everything punitive. We do not want to punish these men; we know punishment alone is not effective. When we sequestrate men, we think they need treatment, and it should be reformative and not punitive, and for those for whom this treatment proves of no value, *permanent custodial care* must be given. That sounds terrible, but we must remember there is a certain percentage of incurable criminals, just as we know there are diseases which are not susceptible to curative measures. These men must be kept in permanent custodial care. The objection will be raised as to the cost; you say, "You will have to keep on building prisons." I hope we will have to build some —up-to-date, sanitary prisons—and these expenditures will be a balance on the credit side of the ledger, if we consider what crime costs. We do not half realize what crime costs. Of course I am speaking more from the standpoint of the psychiatrist regarding these matters than from that of the prison administrator, and I wish to suggest that we are dealing with a large percentage of abnormal individuals. It is not always possible to say whether a person is abnormal or not. We cannot always discover it at once. Medical science has not worked out definitely the divisions and deviations in conduct to answer, but it recognizes that a large percentage of the criminal element is lacking in something; they are psychopathic types or defectives to some degree. Of course some of them are suffering from real mental disease. About 1901 a man was sent to Elmira for burglary in the third degree. He acted rather peculiarly, and we put him in the observation cells for observation. This is what happened: He had been in the Army in the Philippines since 1899. His last recollection was in 1900 when he left the Philippines, and he remembered nothing since. This man was suffering from a condition which we now call dementia praecox, and the crime he committed was due to his diseased mental condition. I wrote the Judge about him, and he was transferred to the Willard State Hospital, not as a criminal, but as a sick man. He was not responsible for anything he had done, and he had no recollection of anything he had done from the time he left the Philippines a year previous. Men who were insane went through the courts occasionally then unrecognized. They would hardly be passed now, because we have reached the point where we have psychiatrists attached to the courts, and also at the prisons. I think one of the steps which in the future will have to be taken is to have a receiving institution (first finding out whether a man is guilty), and then sending him to a central institution, and let him there be studied further by a properly qualified psychiatric staff, with subsequent transfer to an institution devoted to the care of the particular classification to which he belongs. We do not need to have as many kinds of institutions as we have nervous diseases, but there should be seven or eight different institutions to receive and care for these different types of men. We are putting young offenders with hardened criminals and the effect is very bad.

We should not have these large institutions. Suppose you have 1500 men, and you want to give a five minute interview to 1500 men. I found out if I gave an inmate a ten minute interview daily, and worked eight hours a day, it would take me a month to interview all the men, and during that month there would be a lot more things which would come up that they would want to see me about! It is impossible for a superintendent to know 1500 men. He should have an intimate knowledge of their personal affairs and reactions, and then he could help them.

Some men go wrong on parole, I know, and others never go wrong, and there are some prisoners who never should be permitted to go out on parole because they never reform, and are a menace to the community. I think it is too bad that the work at Elmira is not more generally known. That is a great institution which teaches 36 trades; it has a school and takes young fellows between the ages of sixteen and thirty, who cannot read or write, and teaches them to do so. There is a choice of 36 trades, and they try to give the prisoners their choice as far as possible. They are marked on their conduct, on their progress in school, on their progress in their trade, and their departure depends on their marks, because their progress shows their self-control, and is some indication of their intentions. Defectives cannot make perfect marks because their failures are due to their lack of mental endowment. Their mentality is so low that they need custodial care. When that is found out, they should be transferred to custodial institutions. There can be no question about the kind of prisons we send men to. You cannot expect to send them to prisons like those which we have in New York State and expect them to be benefited there.

Mr. Kirchwey expressed the thought that we govern ourselves. We do, and the condition of some of our prisons is an example of how well we do it. We need decent prisons. We must have decent prisons with the ordinary conveniences of life. We have passed the stage of civilization when we go out and crack ice in the wash-basin in January. Prisoners are entitled to leave a prison in as good physical condition as when they entered it; they are entitled to have decent food and humane treatment. We hear from well-meaning, but inexperienced and impractical persons that prison discipline should be lightened. Many of these men have never had any discipline at all, and that is why they are there. They need discipline. It is good for them. A fair and just marking system is needed. My experience is identical with that of Mr. Kirchwey. If a prisoner feels he is judged honestly and fairly, very seldom will he complain. If he feels the man who has made the decision has been fair according to his lights, he will take his medicine. Nothing can equal the indeterminate sentence in my opinion when it is administered honestly and fairly. I believe the superintendent of a prison should be in absolute control. He should be paid a good salary, and should be given power. Do not tie him up with politics. That is impossible, if one expects results. At Elmira we had a Board of Managers of five men selected for a period of five years, one new man each year coming on. These were non-political positions, and the men came from every part of the State. I do not know what their politics were; they never asked me what mine were. We used the Civil Service lists, and went through them in order. I never had any trouble with the Civil Service, and believe it is helpful. The superintendent of a prison should be all-powerful, and he should be a man who is properly qualified, and I think he should be a doctor, not because I am a doctor, but because I believe the peculiar mentality of most prisoners is best understood by a physician. I think it is more necessary to understand what manner of man it is, than what crime has been committed or law broken. I think the superintendent of a prison should be appointed by, and removed by, a non-partisan Board of Managers. The position on the Board of Managers should be purely honorary. The only emolument they should receive would be their necessary travelling expenses. The politicians would not serve, if there were no salary attached to these positions. If we secured men of good caliber and quality who were able to manage their prisons, and be independent of politics, and so forth, we would have no more outbreaks, and if the State would give them money enough to have trade schools, suitable educational advantages, reasonable discipline, and decent meals and accommodations, we would have no trouble at all.

ALFRED E. OMMEN, ESQ.: I am afraid I am very much disappointed. I had hoped this evening might produce something good and something helpful, but the first speaker called himself a "hopeful pessimist," and has said that things are no better than they were a hundred years ago, and that conditions in England, Germany, and Holland are all bad, and the condition here is bad. It seems to be a most pathetic expression. When I look back at the years which we have given to prison reform, and all the associations that I have known about, and we have spent our time and money on, like the Prison Reform Association that my dear friend Rounds used to be a director of for years, and when I think of some of the remarkable men who have been wardens of these prisons, and then hear that the whole thing is a dead loss, it seems to me it is a very pathetic and unfor-

tunate situation, and we ought to have some better solution than is presented here to-night. The only thing which has been suggested which was at all good was that the prisoners act better if they are better fed. Otherwise I do not believe that any constructive idea has been given. It seems to me that Mr. Kirchwey put his finger on the trouble when he said the men who had official positions like he had did not understand the prisoners. He also said that most men in Sing Sing had been there before. One of the tragedies which always impresses me in connection with the subject of prison reform, especially in the discussion here to-night, is that there is too much emotion mixed up with it, and I think that one of the main troubles with prison reform in this State has been that there has been too much emotion and too little reason and common sense. I happened to read a brilliant address that Dr. Alexander Lambert made the other night to a number of physicians, in which he ascribed the fact that one of the reasons for the use of alcohol and morphine was on account of the irregularity of emotion which existed in human beings, and because of that, they took to things like morphine and heroin and alcohol in order to regulate themselves and try to brace up. In such discussions as this, everybody forgets the victim. Everybody forgets the old father who was shot in the jewelry store, and the son who was maimed for life; nobody pays any attention to them. There is this maudlin sympathy which goes out to the crook who did the shooting, and it seems to me that the true explanation as to why prison reform has absolutely failed is that the public do not understand it. They have no idea of the subject at all. They do not want to help the prisoners. With one breath Mr. Kirchwey explains the men are out of work, and with the other he asks why can't something be done for them? We know why they are out of work. You get the men in Sing Sing to make shoes, and you would find how many labor unions would object to their making shoes or anything. You would find how quickly their objection would be put forward. If these men were able to work from eight to five, they would be glad to work. They do not want to sit on that long bench all day long, but the political situation in this State immediately says, "Do you want to handle goods made by prison labor?" and immediately the Governor and other officials find opposition to it. What are the prisons going to do? There has been the suggestion that maybe they can make things for their own use. We have other institutions of various kinds. Nobody wants to let them work, and everybody complains because they are lazy and do not work.

My view of the matter is very simple. Everybody can have a view on this subject, because we are not getting anywhere anyway, and we have not done so for over a hundred years. One thing I suggest is that the man who should be warden of a prison is a man who is accustomed to dealing with criminals. I think the average police officer on the streets of New York who has been there for ten years is a great deal more competent to be warden of a prison than a great many people who have no knowledge of the life of a criminal, save what they get out of books. I knew in the old days when I was more familiar with police headquarters a half dozen men who were the keenest in the Department, and who would have made the finest wardens we could possibly have in the prisons of this State, because they had come into daily contact with criminals for years, and studied the men and the treatment that these people needed.

The second suggestion I have to make is that there should be segregation for the men who are desperadoes, hardened criminals, and I believe everyone in this room will agree that it is a mistake to put these men with first offenders; they should be taken out of the prisons, and if the speaker of the evening objects to isolation, send them to Porto Rico. It is a nice place, 100 miles long and 35 miles wide, much bigger than Long Island, and it is a good place to build a prison for all the prisoners in the United States who are desperadoes. At the same time, it seems to me that the breakdown of these prisons is because, as Dr. Robertson said, the unrest spreads from one prison to another. They try a revolt in one place, and another hears of it, and says, "Let us try it," and so the desperadoes try to break prison all over the country. The desperadoes should be segregated. In one outbreak there were 1200 men in the prison, and not one of them raised his hand; it was not more than ten or twenty men, the desperadoes of the prison, who were making all the trouble. The wardens know who are the dangerous men in the prisons, and they would be overjoyed if an opportunity were found to put the desperadoes in some other place. We would then have no outbreaks whatever. We are back where we were a hundred years ago. You are all "hopeful pessimists." Some day this problem will be solved in an intellectual way—by reason and common sense, not by emotion.

WALTER N. THAYER, Jr., M. D., Superintendent of Prisons of the State of Maryland: I have listened with a great deal of interest to both Mr. Kirchwey and Dr. Robertson. I feel, however, that I must take issue with the statement that there has been no improvement in the prison systems of this country in the last 100 years. My recollection of prison conditions dates back to 1892 and I think I can see many improvements in prisons since that time. I have very distinct recollections of the long lines of men in the stripes, the lock step, the shaved heads, the silence system in vogue at that time. I recall the dark cells with the bread and water diet, the use of the ball and chain and other forms of more or less corporal punishment. In those days the system of employment was the contract system, and no one ventured the assertion that convicts did not work. I left the service of New York in November, and I am now located in Maryland, but I will endeavor to point out to you some of the progress in prison management which I think has been accomplished in New York since the date above mentioned. The stripes are gone, conversation is freely permitted unless it interferes with the work at hand, and this step alone I believe has markedly diminished the number of commitments to insane hospitals. Corporal punishment is no longer permitted and I believe the dark cell or dungeon with its bread and water diet is a thing of the past. Schools have been organized in our institutions; the contract labor system has been abolished and the parole system of supervised release has been established. We have also begun to recognize that men are different and New York has established a psychiatric clinic for the purpose of studying the personality of the criminal. We are beginning to understand that the old idea "making the punishment fit the crime" and organizing our treatment of the criminal on that basis was anything but a scientific procedure and we are beginning to attempt to solve the problem by trying to ascertain why the criminal commits crime rather than to attempt to classify him by the type of crime he has committed. What we have been trying to do all through the years is to cure the criminal by attempting to estimate the gravity of the act which the man has committed and to assess a sentence which we believe would provide adequate punishment. We seem to think it quite all right that our legislatures should try to estimate the degree of depravity indicated by the criminal act and to guess how long a term would be required to overcome the man's criminal trends. We fail to appreciate that in most instances the crime is simply what the individual succeeded in accomplishing under the circumstances.

Dr. Robertson, New York State laws are more liberal now than they were formerly. One can now steal $99.99 and only be guilty of petty larceny; however, if the victim is so poor or so careful of what he has that you cannot get your hands on a copper, you cannot be convicted and sentenced for larceny but only for an attempted larceny and the sentence will be half that which you could have received had the victim had more funds or been less careful of them. This is plainly an attempt to make the punishment fit the crime and gives the criminal credit for conditions over which he had no control. I never knew but one man who did not take every cent he could get his hands on. This fellow always divided the plunder accurately, taking half and leaving half. There was no question in my mind but that the man was mentally defective and I think even laymen would agree to the diagnosis. The criminal law does not take into consideration that the average prisoner is under twenty-five years of age; that he has never finished the 6th grade in school; that 40 per cent of them are mentally defective; 35 per cent are psycopathic; from 2 to 5 per cent are insane. The small number remaining might be called normal individuals. We do not take into consideration the fact that this man began his criminal career when he was but ten or twelve years old and that when he comes to prison as a first offender it may be that he has had a long criminal career as a juvenile offender and that he is a so-styled first offender simply because it happens to be his first conviction as an adult. I once knew of a man who was sentenced to the State Reformatory at Elmira as a first offender as the result of his seventeenth known arrest. He had managed to evade the responsibilities for the other sixteen offences. Now a new difficulty arises. Sentence as fixed by the courts under the present system necessarily fixes a date of expiration. After the man has served this period of time, it does not make a bit of difference what his attitude is towards society, the warden of the prison must release him and the man knows it . If we could so amend the law so as to allow the commitment of the recidivist on an absolutely indeterminate basis, it would have a tremendous influence on the habitual criminal. The institution at Napanoch, New York, of which I was formerly superintendent, has this type of commitment. All of its inmates are presumably to a greater or lesser degree, mentally deficient. I recall a case of one individual who was transferred to me from another institution. In these cases it is necessary if the superintendent believes the man to be a menace to society at the expiration of his sentence, to have him recommitted by the court in order to hold him beyond that time. I followed this procedure with the man in question. I could detect a degree of sub-normality but he was what we would term high grade or a border-line case. His people wrote me and asked me to parole him. They

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More Embarrassment for Naive Eugenists

It is to be presumed that a certain famous baby is being wet-nursed, rather than deprived of its right as a truly privileged citizen. It would be a hasty conclusion which would introduce the probability of an artificial food. We take it for granted that none has been used. From a biological standpoint it appears not to matter much who nurses a baby so long as the woman who does it is healthy; it does not have to be the mother. Nursed, of course, he must be if he is to get a really square pediatric deal. The cost of achieving such an ideal means nothing in such instances as the one before us.

During the war there was a pretty theory put forth to the effect that many of the obvious weaknesses in the Kaiser's mind and character were due to his having been wet-nursed by a peasant woman. It was probably a figment of some newspaperman's imagination, or it may have emanated from one of the propaganda factories abroad. Of course, there was no scientific warrant for such spoofing. The wet-nursing of our famous baby would be the best possible substitute for his own mother's milk. Just the same, we would have wished that in this case there had been no wet-nursing of any kind, but instead a badly needed national example.

We fancy that the professional eugenists who have been saying so much about the marvelous heritage of this particular baby are a bit nonplussed at present, since most of them would surely affirm that a truly virile stock nurses its young as a matter of course.

The General Practitioner

Certain signs suggest that the general practitioner is to become more important than he ever was in the old days. Some of the medical schools are fully awake, seemingly, to the necessity of training good general men if our modern programs are to be "put over." Then specialization and the specialist are under pretty heavy fire, as witness, for example, the New York Welfare Council's recent comments upon the shortcomings of the ophthalmologists and their special hospitals. Dr. Peabody, in his important book *Doctor and Patient* (Macmillan), shows very clearly the absurdity of our overdone specialization and the irrationality of our failure to draft the services of the general practitioner far more often. Then there are Logan Clendening's smashing attacks upon specialization, his demand that general practitioners be included on the staffs of all hospitals and on the faculties of all our schools, and his argument that the general practitioner is preventing a vast number of unnecessary operations and functioning very efficiently in his important field. It is not he (the general practitioner) so much as the incompetent gentleman who is turning out a "deluge of electrocardiagrams" entailing useless expense and bad advice to the sick who is now under a cloud (p. 244, *J. A. M. A.*, July 26, 1930). Finally, the intelligent layman is deploring the loss to the country of graduates such as were once trained by schools like Bowdoin, instead of whom "we have specialists who cannot treat an entire patient" (p. 283, *Atlantic Monthly*, August, 1930). So the tables have indeed turned.

The cause of the general practitioner is also aided by the increasing inability of the middle classes to meet the charges of the specialist.

It has never been possible to organize the general practitioners into a definite group for offensive and defensive purposes. The writer recalls one or two useless attempts. But the trend of affairs, social, economic and educational, is revivifying him in any case. He has always typified individualism above everything else (which is why he could never be organized along selfish lines), and God knows that quality was never so much needed as now.

Lastly, in the field of present-day literature of the first rank, the general practitioner is the most fascinating of figures, as witness *Doctor Serocold*, by Helen Ashton (Doubleday, Doran).

The "Quaintness" of Doctors

One of the "modern" writers, voicing a complaint against the doctor's apparent lack of interest in certain propaganda relating to medical service, accuses him of being a "quaint individualist." It is true that he is just that, thank goodness, in the midst of a growing mob mind; but the real trouble with the doctor is not that he is not social-minded, but that he is not socialist-minded. He is sufficiently social-minded—we should say exceedingly so—but anything savoring of socialized medical service leaves him cold, and properly too.

This is the fallacy that makes the propagandist see red when confronted by a solid wall of "quaint individualists." This is the wall that irks and blocks him in his schemes to dehumanize the body

social and make the medical profession indistinguishable in costume and outlook from the letter-carriers of the nation.

Let us never shed this annoying quaintness, and let us be more than ever social-minded in the best sense.

On "Living Dangerously"

Mussolini has an idea that he is living more dangerously than his apparently safe neighbor, but, from the medical angle, it is a question whether any one of us really lives more dangerously than another.

Mussolini may be exposed to special dangers from would-be assassins, but his neighbor may lack vitamins or minerals in his diet without which metabolism and nutrition falter or the muscle of the heart staggers wearily.

It is even a question whether the neighbor's danger from sudden death or mutilation is not at least as great as Mussolini's, when one considers all the violent possibilities inherent in our machine age. And then there are the infections and the degenerative diseases.

There is sportsmanship—apparently—in Mussolini's desire to be conscious of danger. This is a better reaction than cowardice and panic. Most human beings are complacently ignorant of the dangers that beset them and would not be good sportsmen if they realized them; and they have mastered the stupid art of the ostrich when they drink the bootleggers' wares and do many other silly things in kind.

We even add to the dangers of life, though in a well-intentioned way, in our very effort to insure, for example, a sufficiency of vitamins; for the *Journal of the American Medical Association* and other authorities have sounded a warning against excessive vitamin consumption. Who knows but what the growth factor in vitamin B, so essential in childhood, may fatally promote the growth of cancer cells? And it has already been shown that the irradiation of certain substances is disastrous to rats.

Mussolini enjoys no monopoly or special privilege with respect to personal danger.

Meanwhile let us be enlightened sportsmen, searching out the facts constructively and minimizing dangers intelligently, as we have set ourselves to do in the matter of wars.

The term sportsmanship in relation to Mussolini may be a bit strained. A compensatory bravado of a rather cheap brand would seem to fit the Italian exhibitionist better.

Rebates

Our attention has again been called to a source of revenue for the medical practitioner which smacks of "business."

It is not a new subject, the offer of druggists and makers of trusses and abdominal bandages to give a discount to doctors who send them customers.

The profit must be at the expense of the innocent patient, who does not know at least a wing of our profession has become commercialized. It leaves a bad taste in the mouth. We must be hard up indeed when we stoop to such a partnership.

Nor is this the worst of it. Many a hospital has its favorite bandage-maker (and undertaker?), whose name is mentioned discreetly when one asks, without naming any special firm, to whom patients are to be referred.

It is rather hard on those of moderate means when he, or she, asks for information. Even nurses are "wise."

The Medical Society of the County of New York has its hands full in the honest endeavor to reform existing abuses.—H. C. C.

Ultraviolet Tattoo For New Born Children

In his address before the Society of Medical Jurisprudence reported in this issue, Doctor Goodman gives but a line to the possibility of using ultra-violet radiation to tattoo identification marks or numbers on new born children. The recent mix-up alleged to have occurred of new born Chicago children recalls a method which he has suggested and which should be better known. The method is to have a stencil disk for each prospective mother on her wrist before entering the delivery chamber; as soon as the child is born, ray the stencil by a thirty-second application of water-cooled mercury vapor arc in quartz apparatus on the skin of the baby, and of the mother; this should be done before actual separation of mother and child. The stencil may be inked on the skin, also, if desired. The stencil may remain on the mother's wrist, a duplicate to be placed on the baby, or any other method of identification may be used as at present. If everything is satisfactory, and no claim of mix-up occurs, all that has happened in addition to present methods of identification is that mother and child have a ring of erythema (sunburn) with a numeral—the sunburn stencil. Like other sunburn redness, this fades.

There seems nothing very revolutionary in this sunburn tattoo. But, suppose several months elapse, and the father determines that the child brought home is not his? Ordinary methods of marking babies fail; the tapes have been removed; the name necklaces have been discarded; and claims and counterclaims are in the air. Has the mother and baby been sunburned for identification? Yes, but the primary redness has disappeared. No matter! Just put the "black light" on the skin of the baby, and the old sunburn stencil mark appears as vividly as a fresh sunburn, revealing the original mark which can be compared to the stencil mark on the mother made visible under the black rays of filtered ultraviolet light.

"Salvation Free"

This old slogan of Methodism, so familiar to us who passed through so many revivals unscathed, has been adopted by the altruists in our profession. On every side one hears and reads of drives to assist hospitals in abolishing, or lowering, the medical expenses of institutions which still assert that they have ample accommodations for the worthy poor.

Just out of curiosity we have wandered about among hospitals and read with admiration the long lists on marble slabs of donors of "free" beds, and at the same time have asked embarrassing questions of their superintendents as to the real meaning of the term. The answers have been invariably evasive. "Yes, we have some free patients," they reply, "but those who can pay something are expected to put up at least three dollars per day (!)" Of course the doctors are glad to attend them gratis, just for the practice.

What becomes of the millions which are donated by charitable men and women? Are they used for "overhead expenses"?

Meantime the struggling practitioner outside resents bitterly the fact that he is ignored and regards hospitals as his natural enemies, at least in this commercial city.

We have just received the report of the three years' work of the Committee on the Costs of Medical Care, which is somewhat elusive. Let them consider the question which we ask.—H. C. C.

The 'Open' Fee-Splitting Proposal

The economic problem of the general practitioner would be greatly mitigated if surgeons and specialists declined to treat patients not referred by him. It will do no good for the surgeon and specialist to render open bills, frankly including the practitioner, unless the entire volume of referred cases passes through the latter's hands and unless he maintains some degree of contact and responsibility after he has referred his patients to another. In emergency cases a medical man should figure as soon as expedient, that is, where surgical aid has had to be sought primarily. But it is greatly to be doubted whether the whole body of surgeons and specialists will ever concertedly do anything to lessen the direct recourse to them of perhaps a majority of their patients. Things would never have been allowed to reach the pass they have by groups possessed of much professional vision, sense of solidarity, and a high degree of enlightened self-interest. Therefore it is justifiable to question their wisdom to-day. It has never been so much a question either of altruism or of greed, as of the need of social "emmetropia" in behalf of common professional interests. The spectacles have not been invented that will remedy our myopia (or is it glaucoma?).

In taking the stand that the medical interests of the sick cannot be too well taken care of we feel that we stand on impregnable ground, but we have no illusions as to the likelihood of any abatement in the stupidity of present arrangements.

Psychiatry and the General Practitioner

Far be it from us to criticize the superior wisdom of our confrères, who dwell in a higher and purer atmosphere than do we, who deal with facts more than with theories—with aches and pains rather than with "unfulfilled wishes."

We all have the latter, hence we all need advice on how to cure the body through the soul, or vice versa.

We do not deny that psychiatry played a useful part in wartime, when medical officers were called upon to handle the "nuts" who slipped through the examining boards at home and were sent overseas to vex the C.O.'s of the outfits, so unfortunate as to draw them—*quorum pars fui.*

Doubtless we treated them somewhat roughly and unsympathetically at the front, though we did not recommend a firing-squad for men who had cold feet under fire and slipped through to the rear. Cowardice in the American Army was so rare that it was regarded *per se* as an evidence of mental instability.

In fact when a patient came to us with a suspicious wound tagged as "self inflicted," we deliberately changed the diagnosis to "accidental" and insisted that he was a subject for mental, as well as surgical treatment, and so saved him from a subsequent court martial.

We affirm that peace is a more severe test of one's mental balance than is war, when every sane man was brave in such good company. Now we have gone to the other extreme and coddled and pensioned "veterans" (many of whom never smelled powder) ten to twelve years after their exposure to the nerve-shattering effects of battle, in the Argonne or in Paris, as the case might be. Something queer about it, but this is a queer age anyhow.

Why does the general practitioner look askance at the psychiatrist, when he is called upon daily in his office to practise psychiatry in a cruder way than the eminent specialist?

An open letter by Dr. Griswold in the July issue of the *Times* would seem to answer this question, but he doubtless would be termed "old-fashioned," as we confess that we are. The cynical observer is apt to note the big fees which psychiatrists in this commercial city receive for making a diagnosis and possibly referring the patient to their expensive sanitoria, when he wonders if sympathy and horse sense might not effect a "cure" of the aberrant mind. "Let me not die at the top first," prayed the erratic Dean Swift, but he did all the same.

As we see some of the brightest minds in our own profession clouded under the inevitable stress of our feverish modern life, or of advancing yours, we scrutinize ourselves more sharply for evidence of mental decay and pray that when it comes we may be knocked on the head, gently, but firmly, rather than become subjects for psychiatry. It is a fine specialty, but somewhat overworked.—H. C. C.

The Doctor in Literature

We have been reading recently the collection of the former addresses by James M. Beck, "that great child of honor," whose fine literary style and deep knowledge of human nature are not so much appreciated when we listen to him as when we read what he has spoken.

The witty address on "The Lawyer and Social Progress" leads us to regret the fact that we have not a similar apologist for our own profession, perhaps because we do not deserve it, though "we have served the state and they know it."

He speaks of the public looking askance at lawyers, which we have learned to do in these latter days, and the same criticism applies to doctors. How explain otherwise the doubtful loyalty of our patients, whose lack of confidence in our honest opinion is evidenced by the way in which they flit from one physician to another with the same ease with which they change their grocers? Doubtless their habit of "shopping" is influenced by financial considerations, as well as by the distrust indicative of the present age.

As we review the life of Dr. Conan Doyle, we must admit that our profession owes a great debt to him for showing the versatility of our profession in literature. Whatever may be our attitude towards a future stage of development, in which every thinking man really believes, we are influenced by his last expression of faith—that if one is not more gentle and kindly and unselfish at seventy than he was at thirty, "he has lived in vain" and must begin all over again in a higher life. We heard his address on spiritism on his last visit to us, and have studied carefully Sir Oliver Lodge's eloquent pleas during and since the war, attended séances and tried to accept them as evidence of a close communion with our departed friends; but they all left us cold.

In our own profession "we are surrounded by a great cloud of witnesses", who in their lives influenced us deeply, as do the blessed memories of those whose books are now relegated to the dust heap and whose names mean nothing to the present generation.

Their written words, medical and purely literary, prove that doctors have not been wanting in love of general literature and even poetic idealism, but we seem to have forgotten them.

On the other hand, the art of expressing their thoughts in clear, concise language, their command

of good English, so evident to us who read between the lines in medical journals and recent books, prove that we have reason to be proud of their culture, as well as mastery of facts.

We scorn the criticism that we are merely pill vendors and fee seekers when we note the keen interest of medical students and young physicians in their work and their general adhesion to proved facts rather than to theories. We should not fear for the future of our profession, which is not the product of this so-called "mechanical" age, but of thorough education and self training. As regards "social progress"—a rather vague term—we also claim equal rank with the law and ministry. We have done, and are still doing, our bit, but without trumpeting the fact, or seeking the laudation of the press.—H. C. C.

Lay vs. Medical Boards

Always the same old scraps continually going on in hospitals and the solution is so simple, viz.:

1. Every hospital board of managers should have at least three or four members of the attending physicians and surgeons, or of the consulting staff, on the board.
2. Attending to be appointed on their merits, not only on their success in sending in pay patients to help out deficits in the budgets.
3. Juniors have *rights* which should be respected, as they do the hardest work.
4. "Experiments" in hospital management do not pay.
5. Why must the new "Medical Center" go outside of New York for its future "professors"? Have we not enough good men right here, who deserve recognition?

"Put this in your pipe and smoke it." Money is not everything.—H. C. C.

The American Prison

(*Concluded from page* 284)

said they would give him a good home in Chicago and that they had a good job ready for him but if he should again commit a crime they would be all through with him. I told him I had very little confidence in him but said, "Your folks are ready to give you another chance. They say, however, should you again get into trouble they will be all through with you, and I want to assure you that if you get into trouble in New York State and come back to Napanoch, you will be through as I shall not again give you an opportunity for parole." Mental deficiency varies all the way from idiocy to just below the normal mental level. This man was nearly normal. His reply illustrates the influence of the absolutely indeterminate type of commitment. He said, "Superintendent, I am going straight. When you let me out of here you will have seen the last of me but if I do go crooked again—it won't be in the state of New York."

I take exception to the Fourth Offender Law in New York because it removes the last ray of hope from the breast of the man who has been sentenced for life. I do not feel that the court, with the information at hand, is able to prophesy when a man will be fit for release and that is practically what the court is required to do when it is asked to fix a sentence with a definite expiration, but neither do I feel, for the same reason, that the court is qualified to say that a man will never be fit for release and so I am opposed to the Fourth Offender Act in its present form.

I was greatly pleased by what Senator Baumes had to say in the papers of the 13th instant and note that the members of his commission are impressed with the thought that provision should be made for the possible parole of the fourth offender. The parole of these individuals should only be permitted, however, after a thorough case study which should include psychiatric and psychological inquiries and only those should be paroled who seem to have had a definite change of attitude towards society. Someone said this evening that it was hard to believe that anything could be done with a mentally defective criminal. The parole of individuals from the Institution for Defective Delinquents at Napanoch over a period of seven years, shows that between 65 and 70 per cent of the parolees are (I am not going to say reformed) so adjusting to society that they have not gotten into conflict with the law. There is no question in my mind but that a large measure of this success is due to an individual case study and a careful selection for parole. In addition to this, an effort is made to secure work or a job which a man can fill with a respect to himself and to supply adequate supervision. The difficulties with the average parole system is insufficient knowledge of the individual paroled and insufficient supervision of the man in his new environment. Given these two things we would have a much more successful parole system. Do not condemn parole just because some fellow who is out on parole commits a spectacular crime. Parole will never be 100 per cent efficient and whenever a parolee falls down the newspapers point to his failure as an evidence of the failure of the parole system. We cannot point to our successes but our failures receive plenty of publicity. As far as disturbances in prisons are concerned, I believe, with Dr. Kirchwey, that the chronic disturbers do not constitute more than 5 or 10 per cent of the prison inmates. We will have to be prepared to control and house these men properly. Eventually if we are to realize the degree of success for which we hope, in the rehabilitation of the criminal, it will be necessary to amend the law and permit the indefinite detention of men who are unfit for life in the community.

JOHN KIRKLAND CLARK, ESQ.: I am quite sure that all of us present, even including Judge Ommen, have derived a great deal from the discussion tonight. If we have learned nothing else, this discussion by men who have been so outstanding in prison work has pointed out to us the widespread public indifference to prison affairs, and the resultant almost universal public ignorance as to crime and its causes, and the proper treatment of those convicted.

I should therefore like, in making a motion that this body extend its sincere thanks to those who have addressed us tonight, to suggest in addition that this organization request the Board of Trustees, who have had the matter under consideration, to consider whether this Association should not, next year, arrange for a series of discussions, devoting perhaps every other meeting to a consideration of the problem of crime and its punishment. It would seem to be worth while for an organization like ours, which is devoted to the interests of doctors and lawyers, to make the start of a comprehensive, intelligent discussion, from the point of view of the doctors, lawyers, psychiatrists, judges and prison administrators, of those complicated problems which are confronting us.

I therefore move that the Society extend to our speakers of the evening a hearty vote of thanks, and that the Trustees be requested to take up the matter of arranging for a series of such discussions.

The Physician's Library

Medical and Surgical Year-Book. Edited by Physicians' Hospital of Plattsburgh. Plattsburgh, N. Y. The William H. Miner Foundation. Pp. 322. Price, $3.50.

To give due praise to such a remarkable volume as this would take up considerable space, but, to be brief, suffice it to say that this book contains many precious gems of medical knowledge that every physician should possess. In the cardiac round table every phase of heart disease is thoroughly and minutely discussed by eminent physicians. In addition there are presented many other interesting topics, such as the anti-body serum treatment of pneumococcic pneumonias, pneumonia in the aged, congenital syphilis, enterogenic toxemias, gall-bladder disease, the surgery of gastric ulcer and carcinoma, bronchoscopy in a general hospital, etc.

Adolescence—Studies in Mental Hygiene. Edited by Frankwood E. Williams, M.D. New York: Farrar & Rinehart, Inc. Pp. 279. Price, $2.50 net.

The manner in which Dr. Williams leads one to the conclusion that there are no adults is very ingenious, and the arrival at such a unique point of view must have required long and deep deliberation. His insight into human emotions and their puzzling outward manifestations is remarkable, as is the linking of delinquency in children to the failure of parents to obtain an adequate emotional outlet in the home. According to Dr. Williams the adolescent boy and girl have two problems in life, first, emancipation from the home, and, second, the establishment of hetero-sexuality. He laments the neglect of education of the child in mental hygiene, and believes that the root of a child's delinquency is to be found in the parents, the home, school, and neighborhood, and that a work-up such as he proposes would materially reduce the large horde of adolescent delinquents.